INTSEL

STEEL DECK

STEEL DECK CATALOG

EDITION 1

ROOF DECK ◊ COMPOSITE DECK ◊ NON-COMPOSITE DECK ◊ ACCESSORIES

STEEL DECK INSTITUTE sdi® MEMBER

INTSEL

STEEL DECK

EXPANDING TO MEET YOUR NEEDS.

Intsel Steel Deck was established in late 2019 in direct response to our customers' growing need for faster estimate turnarounds, superior-quality steel deck products, and industry-leading storage and logistics solutions. Backed by a significant investment in state-of-the-art equipment and expanded plant capabilities, Intsel Steel Deck proudly delivers one of the most comprehensive lines of steel deck profiles and accessories available today.

YOUR PARTNER IN DECKING SOLUTIONS

With deep roots in steel deck manufacturing and distribution, Intsel Steel Deck serves fabricators, lumberyards, construction suppliers, and roofing contractors across the United States. We understand the unique challenges our customers face and we meet them with competitive pricing, unmatched service, and uncompromising quality.

HIGH-QUALITY PRODUCTS. EXCEPTIONAL SERVICE.

Our advanced production facilities allow us to manufacture with speed, precision, and consistency. From roof and floor deck profiles to matching accessories, every product we deliver is backed by strict quality control standards that ensure reliability and strength.

Whether you're working against tight timelines, need bulk delivery, or require tailored guidance, Intsel Steel Deck is equipped to help you move faster, smarter, and more efficiently.

Contact Intsel Steel Deck today to learn how we can support your success–at every level of your project.

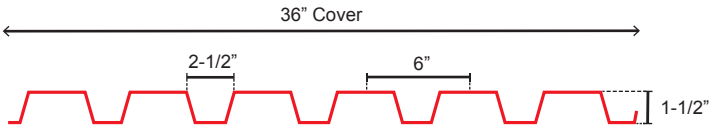
SCAN TO SEE HOW OUR STEEL DECK IS MADE

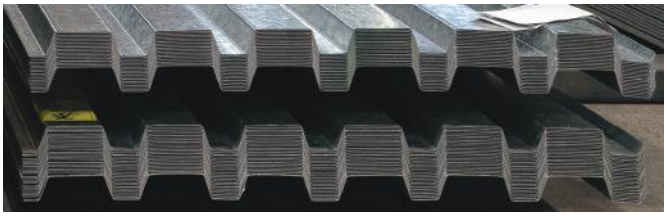
INTSEL

STEEL DECK

TABLE OF CONTENTS

ROOF DECK ◊ TYPE "B"
WIDE RIB





HELPFUL HINT:
Type "B" Deck is the deck of choice for the majority of the roofing applications.

SECTION PROPERTIES AND FLEXURAL RESISTANCE (BARE DECK)

							ASD (Ω = 1.67)			
Profile	Gauge	Design Thickness (inches)	Weight (psf)	Fy ksi	Se + (inch3) per foot	Se - (inch3) per foot	Mp/Ω inch-lbs per ft	Mn/Ω inch-lbs per foot	Id + (inch4) per ft.	Id - (inch4) per ft.
1.5WR	**22**	0.0295	1.6	50	0.167	0.176	5002	5269	0.148	0.172
	20	0.0358	2	50	0.222	0.227	6647	6806	0.184	0.213
	18	0.0474	2.6	50	0.305	0.317	9132	9481	0.262	0.291
	16	0.0598	3	50	0.392	0.402	11737	12036	0.350	0.368

SHEAR AND WEB CRIPPLING (BARE DECK - 50 KSI)

			Web Crippling (Rn/Ω), lbs/ft One Flange Loading End Bearing			Web Crippling (Rn/Ω), lbs/ft One Flange Loading Interior Bearing		
Profile	Gauge	Vn/Ω lbs per ft	1-1/2"	2"	3"	1-1/2"	2"	3"
1.5WR	**22**	2878	822	903	1040	1256	1362	1541
	20	3481	1170	1282	1470	1807	1954	2200
	18	4580	1953	2129	2426	3061	3292	3681
	16	5738	2983	3240	3670	4731	5068	5633

All section properties and ASD flexural strengths are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

ROOF DECK ◊ TYPE "B"
WIDE RIB

Load Tables (psf)

ASD Uniform Downward Loads

Span Cond.	Gauge	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
Single	22	133	110	93	79	68	59	52	46	41	37	33
	20	177	146	123	105	90	79	69	61	55	49	44
	18	244	201	169	144	124	108	95	84	75	67	61
	16	313	259	217	185	160	139	122	108	97	87	78
Double	22	141	116	98	83	72	62	55	49	43	39	35
	20	182	150	126	107	93	81	71	63	56	50	45
	18	253	209	176	150	129	112	99	87	78	70	63
	16	321	265	223	190	164	143	125	111	99	89	80
Triple	22	176	145	122	104	90	78	69	61	54	49	44
	20	227	188	158	134	116	101	89	79	70	63	57
	18	316	261	219	187	161	140	123	109	98	88	79
	16	401	332	279	237	205	178	157	139	124	111	100

ASD Uniform Upward Loads

Span Cond.	Gauge	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
Single	22	141	116	98	83	72	62	55	49	43	39	35
	20	182	150	126	107	93	81	71	63	56	50	45
	18	253	209	176	150	129	112	99	87	78	70	63
	16	321	265	223	190	164	143	125	111	99	89	80
Double	22	133	110	93	79	68	59	52	46	41	37	33
	20	177	146	123	105	90	79	69	61	55	49	44
	18	244	201	169	144	124	108	95	84	75	67	61
	16	313	259	217	185	160	139	122	108	97	87	78
Triple	22	167	138	116	99	85	74	65	58	51	46	42
	20	222	183	154	131	113	98	87	77	68	61	55
	18	304	252	211	180	155	135	119	105	94	84	76
	16	391	323	272	231	200	174	153	135	121	108	98

Notes:

All section properties and ASD ($\Omega = 1.67$) uniform loads are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

Loads shown in tables are uniformly distributed superimposed loads in psf. Span length assumes center-to-center spacing of supports. Tabulated loads shall not be increased by assuming clear span dimensions.

Bending Moment formulae used for flexural stress limitations are:

Simple and Two Span
$M = (w\ell^2) / 8$

Three Span or More
$M = (w\ell^2) / 10$

Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

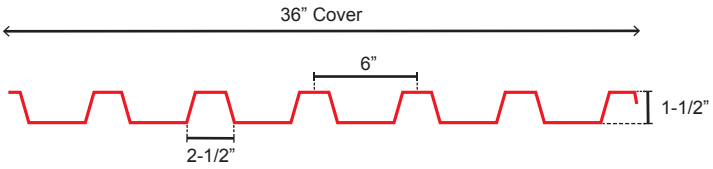
Uniform Service Load that Causes L/240 Deflection

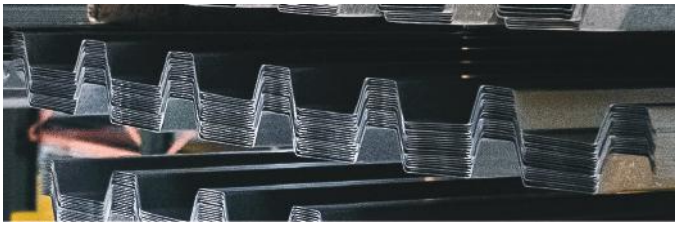
Span Cond.	Gauge	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
Single	22	78	58	45	35	28	23	19	16	13	11	10
	20	97	73	56	44	35	29	24	20	17	14	12
	18	138	103	80	63	50	41	34	28	24	20	17
	16	184	138	106	84	67	54	45	37	32	27	23
Double	22	187	140	108	85	68	55	46	38	32	27	23
	20	233	175	135	106	85	69	57	47	40	34	29
	18	332	249	192	151	121	98	81	67	57	48	41
	16	443	333	256	201	161	131	108	90	76	65	55
Triple	22	146	110	85	67	53	43	36	30	25	21	18
	20	183	137	106	83	67	54	45	37	31	27	23
	18	260	195	150	118	95	77	63	53	44	38	32
	16	346	260	200	158	126	103	85	71	59	51	43

Notes:

For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

ROOF DECK ◊ TYPE "BI"
TYPE "B" INVERTED FORM DECK





Helpful Hint:

Type "BI" Inverted Form Deck is used when the spans and loads exceed the capabilities of standard and heavy-duty form decks.

Section Properties and Flexural Resistance (Bare Deck)

							ASD (Ω = 1.67)			
Profile	Gauge	Design Thickness (inches)	Weight (psf)	Fy ksi	Se + (inch3) per foot	Se - (inch3) per foot	Mp/Ω inch-lbs per ft	Mn/Ω inch-lbs per foot	Id + (inch4) per ft.	Id - (inch4) per ft.
1.5WR	22	0.0295	1.6	50	0.167	0.176	5002	5269	0.148	0.172
	20	0.0358	2	50	0.222	0.227	6647	6806	0.184	0.213
	18	0.0474	2.6	50	0.305	0.317	9132	9481	0.262	0.291
	16	0.0598	3	50	0.392	0.402	11737	12036	0.350	0.368

Shear and Web Crippling (Bare Deck - 50 KSI)

			Web Crippling (Rn/Ω), lbs/ft One Flange Loading End Bearing			Web Crippling (Rn/Ω), lbs/ft One Flange Loading Interior Bearing		
Profile	Gauge	Vn/Ω lbs per ft	1-1/2"	2"	3"	1-1/2"	2"	3"
1.5WR	22	2878	822	903	1040	1256	1362	1541
	20	3481	1170	1282	1470	1807	1954	2200
	18	4580	1953	2129	2426	3061	3292	3681
	16	5738	2983	3240	3670	4731	5068	5633

All section properties and ASD flexural strengths are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

ROOF DECK ◊ TYPE "BI"
TYPE "B" INVERTED FORM DECK

Load Tables (psf)

ASD Uniform Downward Loads

Span Cond.	Gauge	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
Single	22	133	110	93	79	68	59	52	46	41	37	33
	20	177	146	123	105	90	79	69	61	55	49	44
	18	244	201	169	144	124	108	95	84	75	67	61
	16	313	259	217	185	160	139	122	108	97	87	78
Double	22	141	116	98	83	72	62	55	49	43	39	35
	20	182	150	126	107	93	81	71	63	56	50	45
	18	253	209	176	150	129	112	99	87	78	70	63
	16	321	265	223	190	164	143	125	111	99	89	80
Triple	22	176	145	122	104	90	78	69	61	54	49	44
	20	227	188	158	134	116	101	89	79	70	63	57
	18	316	261	219	187	161	140	123	109	98	88	79
	16	401	332	279	237	205	178	157	139	124	111	100

ASD Uniform Upward Loads

Span Cond.	Gauge	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
Single	22	141	116	98	83	72	62	55	49	43	39	35
	20	182	150	126	107	93	81	71	63	56	50	45
	18	253	209	176	150	129	112	99	87	78	70	63
	16	321	265	223	190	164	143	125	111	99	89	80
Double	22	133	110	93	79	68	59	52	46	41	37	33
	20	177	146	123	105	90	79	69	61	55	49	44
	18	244	201	169	144	124	108	95	84	75	67	61
	16	313	259	217	185	160	139	122	108	97	87	78
Triple	22	167	138	116	99	85	74	65	58	51	46	42
	20	222	183	154	131	113	98	87	77	68	61	55
	18	304	252	211	180	155	135	119	105	94	84	76
	16	391	323	272	231	200	174	153	135	121	108	98

Notes:

All section properties and ASD (Ω = 1.67) uniform loads are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

Loads shown in tables are uniformly distributed superimposed loads in psf. Span length assumes center-to-center spacing of supports. Tabulated loads shall not be increased by assuming clear span dimensions.

Bending Moment formulae used for flexural stress limitations are:

Simple and Two Span
$M = (w\ell^2) / 8$

Three Span or More
$M = (w\ell^2) / 10$

Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

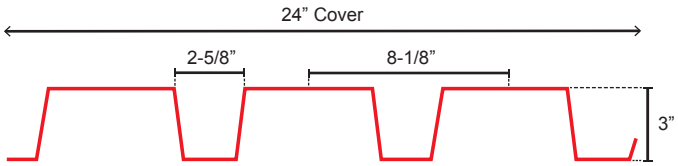
Uniform Service Load that Causes L/240 Deflection

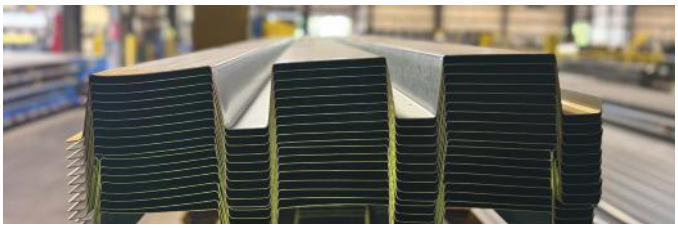
Span Cond.	Gauge	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
Single	22	78	58	45	35	28	23	19	16	13	11	10
	20	97	73	56	44	35	29	24	20	17	14	12
	18	138	103	80	63	50	41	34	28	24	20	17
	16	184	138	106	84	67	54	45	37	32	27	23
Double	22	187	140	108	85	68	55	46	38	32	27	23
	20	233	175	135	106	85	69	57	47	40	34	29
	18	332	249	192	151	121	98	81	67	57	48	41
	16	443	333	256	201	161	131	108	90	76	65	55
Triple	22	146	110	85	67	53	43	36	30	25	21	18
	20	183	137	106	83	67	54	45	37	31	27	23
	18	260	195	150	118	95	77	63	53	44	38	32
	16	346	260	200	158	126	103	85	71	59	51	43

Notes:

For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

ROOF DECK ◊ TYPE "N"
LONG SPAN





HELPFUL HINT:

Type "N" Deck is used when the support spacing exceeds the recommended spacing for Type "B" Deck.

SECTION PROPERTIES AND FLEXURAL RESISTANCE (BARE DECK)

							ASD (Ω = 1.67)			
Profile	Gauge	Design Thickness (inches)	Weight (psf)	Fy ksi	Se + (inch3) per foot	Se - (inch3) per foot	Mp/Ω inch-lbs per ft	Mn/Ω inch-lbs per foot	Id + (inch4) per ft.	Id - (inch4) per ft.
3DR	**22**	0.0295	2	50	0.341	0.376	10196	11250	0.652	0.785
	20	0.0358	2.5	50	0.445	0.501	13334	14993	0.814	0.993
	18	0.0474	3.3	50	0.652	0.703	19521	21033	1.130	1.353
	16	0.0598	4.1	50	0.845	0.909	25311	27223	1.495	1.728

SHEAR AND WEB CRIPPLING (BARE DECK - 50 KSI)

			Web Crippling (Rn/Ω), lbs/ft One Flange Loading End Bearing			Web Crippling (Rn/Ω), lbs/ft One Flange Loading Interior Bearing		
Profile	Gauge	Vn/Ω lbs per ft	1-1/2"	2"	3"	1-1/2"	2"	3"
3DR	**22**	2595	588	646	744	976	1059	1197
	20	4144	846	927	1063	1407	1521	1712
	18	7208	1430	1560	1777	2385	2566	2868
	16	9237	2205	2394	2712	3691	3954	4394

All section properties and ASD flexural strengths are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

ROOF DECK ◊ TYPE "N"
LONG SPAN

Load Tables (psf)

ASD Uniform Downward Loads

Span Cond.	Gauge	10'-0	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
Single	22	68	62	56	51	47	44	40	37	35	32	30
	20	89	81	73	67	62	57	53	49	45	42	40
	18	130	118	108	98	90	83	77	71	66	62	58
	16	169	153	139	128	117	108	100	93	86	80	75
Double	22	75	68	62	57	52	48	44	41	38	36	33
	20	100	91	83	76	69	64	59	55	51	48	44
	18	140	127	116	106	97	90	83	77	72	67	62
	16	181	165	150	137	126	116	107	100	93	86	81
Triple	22	94	85	77	71	65	60	55	51	48	45	42
	20	125	113	103	94	87	80	74	69	64	59	56
	18	175	159	145	133	122	112	104	96	89	83	78
	16	227	206	187	172	158	145	134	124	116	108	101

ASD Uniform Upward Loads

Span Cond.	Gauge	10'-0	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
Single	22	75	68	62	57	52	48	44	41	38	36	33
	20	100	91	83	76	69	64	59	55	51	48	44
	18	140	127	116	106	97	90	83	77	72	67	62
	16	181	165	150	137	126	116	107	100	93	86	81
Double	22	68	62	56	51	47	44	40	37	35	32	30
	20	89	81	73	67	62	57	53	49	45	42	40
	18	130	118	108	98	90	83	77	71	66	62	58
	16	169	153	139	128	117	108	100	93	86	80	75
Triple	22	85	77	70	64	59	54	50	47	43	40	38
	20	111	101	92	84	77	71	66	61	57	53	49
	18	163	148	134	123	113	104	96	89	83	77	72
	16	211	191	174	159	146	135	125	116	108	100	94

Notes:

All section properties and ASD ($\Omega = 1.67$) uniform loads are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

Loads shown in tables are uniformly distributed superimposed loads in psf. Span length assumes center-to-center spacing of supports. Tabulated loads shall not be increased by assuming clear span dimensions.

Bending Moment formulae used for flexural stress limitations are:

Simple and Two Span
$M = (w\ell^2) / 8$

Three Span or More
$M = (w\ell^2) / 10$

Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

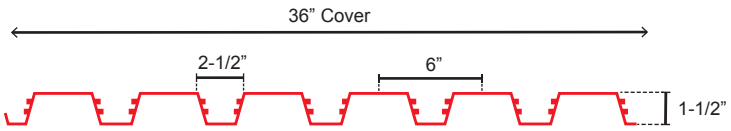
Uniform Service Load that Causes L/240 Deflection

Span Cond.	Gauge	10'-0	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
Single	22	43	37	32	28	25	22	19	17	16	14	13
	20	53	46	40	35	31	27	24	22	19	18	16
	18	74	64	56	49	43	38	34	30	27	24	22
	16	98	85	74	65	57	50	45	40	36	32	29
Double	22	103	89	77	68	60	53	47	42	38	34	31
	20	129	111	97	85	74	66	59	52	47	42	38
	18	179	154	134	117	103	91	81	73	65	59	53
	16	236	204	178	155	137	121	108	96	86	78	70
Triple	22	81	70	61	53	47	41	37	33	29	26	24
	20	101	87	76	66	58	52	46	41	37	33	30
	18	140	121	105	92	81	72	64	57	51	46	41
	16	185	160	139	122	107	95	84	75	67	61	55

Notes:

For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

1-1/2” COMPOSITE DECK



HELPFUL HINT:

1-1/2” Composite Deck is used when the slab and support to support distance are both moderate in size.

SECTION PROPERTIES AND FLEXURAL RESISTANCE (BARE DECK)

							ASD (Ω = 1.67)			
Profile	Gauge	Design Thickness (inches)	Weight (psf)	Fy ksi	Se + (inch3) per foot	Se - (inch3) per foot	Mp/Ω inch-lbs per ft	Mn/Ω inch-lbs per foot	Id + (inch4) per ft.	Id - (inch4) per ft.
1.5x6	22	0.0295	1.6	50	0.167	0.176	5002	5269	0.148	0.172
	20	0.0358	2	50	0.222	0.227	6647	6806	0.184	0.213
	18	0.0474	2.6	50	0.305	0.317	9132	9481	0.262	0.291
	16	0.0598	3	50	0.392	0.402	11737	12036	0.350	0.368

SHEAR AND WEB CRIPPLING (BARE DECK - 50 KSI)

			Web Crippling (Rn/Ω), lbs/ft One Flange Loading End Bearing			Web Crippling (Rn/Ω), lbs/ft One Flange Loading Interior Bearing		
Profile	Gauge	Vn/Ω lbs per ft	1-1/2"	2"	3"	1-1/2"	2"	3"
1.5x6	22	2878	822	903	1040	1256	1362	1541
	20	3481	1170	1282	1470	1807	1954	2200
	18	4580	1953	2129	2426	3061	3292	3681
	16	5738	2983	3240	3670	4731	5068	5633

All section properties and ASD flexural strengths are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

1-1/2" COMPOSITE DECK

Load Tables (psf)

ASD Uniform Superimposed Downward Loads

Span Cond.	Gauge	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
Single	22	133	110	93	79	68	59	52	46	41	37	33
	20	177	146	123	105	90	79	69	61	55	49	44
	18	244	201	169	144	124	108	95	84	75	67	61
	16	313	259	217	185	160	139	122	108	97	87	78
Double	22	141	116	98	83	72	62	55	49	43	39	35
	20	182	150	126	107	93	81	71	63	56	50	45
	18	253	209	176	150	129	112	99	87	78	70	63
	16	321	265	223	190	164	143	125	111	99	89	80
Triple	22	176	145	122	104	90	78	69	61	54	49	44
	20	227	188	158	134	116	101	89	79	70	63	57
	18	316	261	219	187	161	140	123	109	98	88	79
	16	401	332	279	237	205	178	157	139	124	111	100

Notes:

All section properties and ASD (Ω = 1.67) uniform loads are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

Loads shown in tables are uniformly distributed superimposed loads in psf. Span length assumes center-to-center spacing of supports. Tabulated loads shall not be increased by assuming clear span dimensions.

Bending Moment formulae used for flexural stress limitations are:

Simple and Two Span
$M = (w\ell^2) / 8$

Three Span or More
$M = (w\ell^2) / 10$

Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

Uniform Superimposed Service Load that Causes L/240 Deflection

Span Cond.	Gauge	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
Single	22	78	58	45	35	28	23	19	16	13	11	10
	20	97	73	56	44	35	29	24	20	17	14	12
	18	138	103	80	63	50	41	34	28	24	20	17
	16	184	138	106	84	67	54	45	37	32	27	23
Double	22	187	140	108	85	68	55	46	38	32	27	23
	20	233	175	135	106	85	69	57	47	40	34	29
	18	332	249	192	151	121	98	81	67	57	48	41
	16	443	333	256	201	161	131	108	90	76	65	55
Triple	22	146	110	85	67	53	43	36	30	25	21	18
	20	183	137	106	83	67	54	45	37	31	27	23
	18	260	195	150	118	95	77	63	53	44	38	32
	16	346	260	200	158	126	103	85	71	59	51	43

Notes:

For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

1-1/2" COMPOSITE DECK

Construction Span and Composite Deck-Slab Allowable Superimposed Load Tables

Normal Weight Concrete (145 pcf)

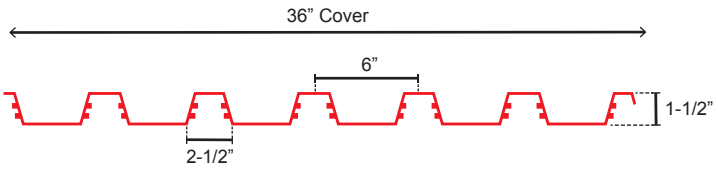
Normal Weight Concrete (145 pcf)			Maximum Unshored Clear Span			Superimposed Live Load in Pounds per Square Foot														
Slab Thickness (Inches)	Weight (psf)	Gauge	1 Span	2 Span	3 Span	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0
3.5	31	22	6' 4"	7' 5"	7' 6"	400	400	400	365	311	268	233	204	179	158	141	125	112	101	91
		20	7' 8"	9' 0"	9' 1"	400	400	400	400	373	322	280	246	217	192	171	153	137	124	112
		18	8' 7"	10' 7"	11' 0"	400	400	400	400	400	400	364	320	283	252	225	202	182	164	149
		16	9' 6"	12' 0"	12' 4"	400	400	400	400	400	400	400	394	349	311	278	250	226	205	186
4	37	22	6' 0"	7' 1"	7' 2"	400	400	400	400	391	337	293	256	225	199	177	158	142	127	115
		20	7' 3"	8' 6"	8' 8"	400	400	400	400	400	400	353	309	273	242	216	193	174	156	141
		18	8' 2"	10' 1"	10' 5"	400	400	400	400	400	400	400	400	357	317	284	255	230	208	189
		16	9' 0"	11' 5"	11' 9"	400	400	400	400	400	400	400	400	400	393	352	317	286	260	236
4.5	43	22	5' 9"	6' 9"	6' 10"	400	400	400	400	400	400	355	311	274	242	216	193	173	155	140
		20	7' 0"	8' 7"	8' 10"	400	400	400	400	400	400	400	376	332	294	263	235	211	191	173
		18	7' 10"	9' 8"	10' 0"	400	400	400	400	400	400	400	400	400	387	346	311	280	254	230
		16	8' 7"	10' 10"	11' 3"	400	400	400	400	400	400	400	400	400	400	400	387	350	317	289
5	49	22	5' 7"	6' 6"	6' 7"	400	400	400	400	400	400	400	367	324	287	255	228	204	184	166
		20	6' 8"	7' 10"	7' 11"	400	400	400	400	400	400	400	400	393	349	311	279	251	226	205
		18	7' 6"	9' 3"	9' 7"	400	400	400	400	400	400	400	400	400	400	400	369	333	301	274
		16	8' 3"	10' 5"	10' 9"	400	400	400	400	400	400	400	400	400	400	400	400	400	377	344
5.5	55	22	5' 4"	6' 3"	6' 4"	400	400	400	400	400	400	400	400	374	332	296	264	237	213	193
		20	6' 5"	7' 6"	7' 7"	400	400	400	400	400	400	400	400	400	400	360	323	291	262	238
		18	7' 3"	8' 11"	9' 2"	400	400	400	400	400	400	400	400	400	400	400	400	386	350	318
		16	7' 12"	10' 0"	10' 4"	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
6	61	22	5' 2"	6' 1"	6' 2"	400	400	400	400	400	400	400	400	400	378	337	301	270	243	220
		20	6' 3"	7' 3"	7' 4"	400	400	400	400	400	400	400	400	400	400	400	368	332	299	271
		18	7' 0"	8' 7"	8' 10"	400	400	400	400	400	400	400	400	400	400	400	400	400	399	363
		16	7' 9"	9' 8"	10' 0"	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400

Light Weight Concrete (115 pcf)

Light Weight Concrete (115 pcf)			Maximum Unshored Clear Span			Superimposed Live Load in Pounds per Square Foot														
Slab Thickness (Inches)	Weight (psf)	Gauge	1 Span	2 Span	3 Span	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0
3.5	23	22	7' 2"	8' 6"	8' 7"	400	400	400	353	302	261	227	199	176	156	139	125	112	101	91
		20	8' 10"	10' 3"	10' 6"	400	400	400	400	360	311	272	239	211	188	168	150	136	123	111
		18	9' 0"	12' 1"	12' 6"	400	400	400	400	400	400	349	308	272	243	217	196	177	160	146
		16	11' 0"	13' 8"	14' 1"	400	400	400	400	400	400	400	364	323	288	258	233	210	191	174
4	28	22	6' 10"	8' 0"	8' 1"	400	400	400	400	380	328	286	251	222	197	176	157	141	128	116
		20	8' 4"	9' 9"	9' 11"	400	400	400	400	400	393	343	301	266	237	212	190	171	155	141
		18	9' 4"	11' 6"	11' 10"	400	400	400	400	400	400	400	389	344	307	275	247	224	203	184
		16	10' 4"	12' 11"	13' 4"	400	400	400	400	400	400	400	400	400	377	338	305	276	250	228
4.5	33	22	6' 6"	7' 8"	7' 9"	400	400	400	400	400	399	348	305	270	240	214	192	172	156	141
		20	7' 11"	9' 9"	10' 1"	400	400	400	400	400	400	400	367	324	289	258	232	209	189	172
		18	8' 10"	10' 11"	11' 3"	400	400	400	400	400	400	400	400	400	375	336	302	273	248	226
		16	9' 9"	12' 4"	12' 9"	400	400	400	400	400	400	400	400	400	400	400	373	338	307	280
5	37	22	6' 3"	7' 4"	7' 5"	400	400	400	400	400	400	400	362	320	284	254	228	205	185	168
		20	7' 7"	8' 11"	9' 0"	400	400	400	400	400	400	400	400	385	343	307	276	249	225	205
		18	8' 6"	10' 6"	10' 11"	400	400	400	400	400	400	400	400	400	400	400	360	326	296	269
		16	9' 5"	11' 10"	12' 3"	400	400	400	400	400	400	400	400	400	400	400	400	400	367	335
5.5	42	22	6' 0"	7' 1"	7' 2"	400	400	400	400	400	400	400	400	371	330	294	264	238	215	195
		20	7' 3"	8' 6"	8' 8"	400	400	400	400	400	400	400	400	400	398	356	320	289	262	238
		18	8' 2"	10' 1"	10' 5"	400	400	400	400	400	400	400	400	400	400	400	400	379	344	313
		16	9' 0"	11' 5"	11' 9"	400	400	400	400	400	400	400	400	400	400	400	400	400	400	390
6	46	22	5' 10"	6' 10"	6' 11"	400	400	400	400	400	400	400	400	400	376	336	302	272	246	223
		20	7' 1"	8' 3"	8' 4"	400	400	400	400	400	400	400	400	400	400	400	366	330	299	272
		18	7' 11"	9' 9"	10' 1"	400	400	400	400	400	400	400	400	400	400	400	400	400	394	359
		16	8' 9"	11' 0"	11' 5"	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400

Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

1-1/2” INVERTED COMPOSITE DECK



Helpful Hint:

Reversed or inverted composite steel deck refers to metal decking that is intentionally installed upside down. This can be done for aesthetic reasons or to achieve a stronger concrete slab in certain situations.

Section Properties and Flexural Resistance (Bare Deck)

							ASD (Ω = 1.67)			
Profile	Gauge	Design Thickness (inches)	Weight (psf)	Fy ksi	Se + (inch3) per foot	Se - (inch3) per foot	Mp/Ω inch-lbs per ft	Mn/Ω inch-lbs per foot	Id + (inch4) per ft.	Id - (inch4) per ft.
1.5x6	**22**	0.0295	1.6	50	0.176	0.167	5269	5002	0.172	0.148
	20	0.0358	2	50	0.227	0.222	6806	6647	0.213	0.184
	18	0.0474	2.6	50	0.317	0.305	9481	9132	0.291	0.262
	16	0.0598	3	50	0.402	0.392	12036	11737	0.368	0.350

Shear and Web Crippling (Bare Deck - 50 KSI)

			Web Crippling (Rn/Ω), lbs/ft One Flange Loading End Bearing			Web Crippling (Rn/Ω), lbs/ft One Flange Loading Interior Bearing		
Profile	Gauge	Vn/Ω lbs per ft	1-1/2"	2"	3"	1-1/2"	2"	3"
1.5x6	**22**	2878	822	903	1040	1256	1362	1541
	20	3481	1170	1282	1470	1807	1954	2200
	18	4580	1953	2129	2426	3061	3292	3681
	16	5738	2983	3240	3670	4731	5068	5633

All section properties and ASD flexural strengths are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

1-1/2" INVERTED COMPOSITE DECK

Load Tables (psf)

ASD Uniform Superimposed Downward Loads

Span Cond.	Gauge	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
Single	22	141	116	98	83	72	62	55	49	43	39	35
	20	182	150	126	107	93	81	71	63	56	50	45
	18	253	209	176	150	129	112	99	87	78	70	63
	16	321	265	223	190	164	143	125	111	99	89	80
Double	22	133	110	93	79	68	59	52	46	41	37	33
	20	177	146	123	105	90	79	69	61	55	49	44
	18	244	201	169	144	124	108	95	84	75	67	61
	16	313	259	217	185	160	139	122	108	97	87	78
Triple	22	167	138	116	99	85	74	65	58	51	46	42
	20	222	183	154	131	113	98	87	77	68	61	55
	18	304	252	211	180	155	135	119	105	94	84	76
	16	391	323	272	231	200	174	153	135	121	108	98

Notes:

All section properties and ASD (Ω = 1.67) uniform loads are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

Loads shown in tables are uniformly distributed superimposed loads in psf. Span length assumes center-to-center spacing of supports. Tabulated loads shall not be increased by assuming clear span dimensions.

Bending Moment formulae used for flexural stress limitations are:

Simple and Two Span
$M = (w\ell^2) / 8$

Three Span or More
$M = (w\ell^2) / 10$

Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

Uniform Superimposed Service Load that Causes L/240 Deflection

Span Cond.	Gauge	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
Single	22	78	58	45	35	28	23	19	16	13	11	10
	20	97	73	56	44	35	29	24	20	17	14	12
	18	138	103	80	63	50	41	34	28	24	20	17
	16	184	138	106	84	67	54	45	37	32	27	23
Double	22	187	140	108	85	68	55	46	38	32	27	23
	20	233	175	135	106	85	69	57	47	40	34	29
	18	332	249	192	151	121	98	81	67	57	48	41
	16	443	333	256	201	161	131	108	90	76	65	55
Triple	22	146	110	85	67	53	43	36	30	25	21	18
	20	183	137	106	83	67	54	45	37	31	27	23
	18	260	195	150	118	95	77	63	53	44	38	32
	16	346	260	200	158	126	103	85	71	59	51	43

Notes:

For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

1-1/2" INVERTED COMPOSITE DECK

Construction Span and Composite Deck-Slab Allowable Superimposed Load Tables

Normal Weight Concrete (145 pcf)

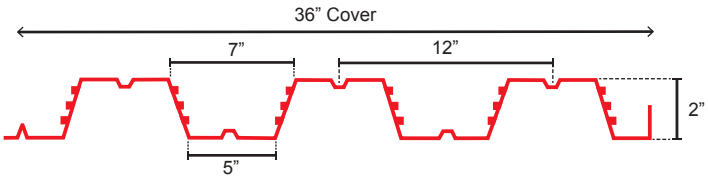
Normal Weight Concrete (145 pcf)			Maximum Unshored Clear Span			Superimposed Live Load in Pounds per Square Foot														
Slab Thickness (Inches)	Weight (psf)	Gauge	1 Span	2 Span	3 Span	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0
3.5	36	22	6' 7"	7' 8"	7' 9"	400	400	400	400	372	321	278	244	214	190	169	150	135	121	109
		20	7' 10"	8' 11"	9' 2"	400	400	400	400	400	387	337	295	260	231	206	184	165	149	135
		18	8' 11"	10' 5"	10' 9"	400	400	400	400	400	400	400	386	342	304	272	244	220	199	180
		16	9' 8"	11' 10"	12' 3"	400	400	400	400	400	400	400	400	400	378	338	304	275	249	227
4	42	22	6' 3"	7' 4"	7' 5"	400	400	400	400	400	392	341	298	263	233	207	185	165	149	134
		20	7' 5"	8' 5"	8' 9"	400	400	400	400	400	400	400	362	319	283	252	226	203	183	166
		18	8' 6"	9' 11"	10' 3"	400	400	400	400	400	400	400	400	400	373	334	300	270	245	222
		16	9' 2"	11' 3"	11' 7"	400	400	400	400	400	400	400	400	400	400	400	374	338	307	279
4.5	48	22	5' 12"	7' 0"	7' 1"	400	400	400	400	400	400	400	355	313	277	246	220	197	178	160
		20	7' 3"	8' 5"	8' 8"	400	400	400	400	400	400	400	400	380	337	301	270	242	219	198
		18	8' 1"	9' 6"	9' 9"	400	400	400	400	400	400	400	400	400	400	398	358	323	292	265
		16	8' 9"	10' 9"	11' 1"	400	400	400	400	400	400	400	400	400	400	400	400	400	367	334
5	54	22	5' 9"	6' 9"	6' 10"	400	400	400	400	400	400	400	400	364	322	287	257	230	207	187
		20	6' 10"	7' 9"	7' 12"	400	400	400	400	400	400	400	400	400	393	351	314	283	255	231
		18	7' 9"	9' 1"	9' 5"	400	400	400	400	400	400	400	400	400	400	400	400	376	341	310
		16	8' 5"	10' 3"	10' 8"	400	400	400	400	400	400	400	400	400	400	400	400	400	400	391
5.5	60	22	5' 7"	6' 5"	6' 7"	400	400	400	400	400	400	400	400	400	368	328	293	263	237	214
		20	6' 7"	7' 5"	7' 8"	400	400	400	400	400	400	400	400	400	400	400	360	324	292	265
		18	7' 6"	8' 9"	9' 0"	400	400	400	400	400	400	400	400	400	400	400	400	400	391	355
		16	8' 2"	9' 11"	10' 3"	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
6	66	22	5' 4"	6' 3"	6' 4"	400	400	400	400	400	400	400	400	400	400	370	331	297	268	242
		20	6' 4"	7' 2"	7' 5"	400	400	400	400	400	400	400	400	400	400	400	400	365	330	299
		18	7' 3"	8' 5"	8' 8"	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
		16	7' 10"	9' 6"	9' 10"	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400

Light Weight Concrete (115 pcf)

Light Weight Concrete (115 pcf)			Maximum Unshored Clear Span			Superimposed Live Load in Pounds per Square Foot														
Slab Thickness (Inches)	Weight (psf)	Gauge	1 Span	2 Span	3 Span	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0
3.5	27	22	7' 2"	8' 5"	8' 6"	400	400	400	400	363	314	274	240	212	188	168	150	135	122	110
		20	8' 7"	9' 9"	10' 0"	400	400	400	400	400	376	328	289	255	227	203	182	164	148	135
		18	9' 10"	11' 5"	11' 9"	400	400	400	400	400	400	400	368	326	290	260	234	211	192	174
		16	10' 7"	12' 11"	13' 4"	400	400	400	400	400	400	400	400	383	342	307	276	250	227	207
4	32	22	6' 9"	7' 12"	8' 1"	400	400	400	400	400	385	335	294	260	231	206	185	166	150	136
		20	8' 1"	9' 3"	9' 6"	400	400	400	400	400	400	400	354	313	279	249	224	202	183	166
		18	9' 3"	10' 10"	11' 2"	400	400	400	400	400	400	400	400	400	363	326	293	265	240	219
		16	10' 0"	12' 3"	12' 8"	400	400	400	400	400	400	400	400	400	400	400	363	329	299	272
4.5	37	22	6' 6"	7' 8"	7' 9"	400	400	400	400	400	400	399	350	310	275	245	220	198	179	162
		20	7' 12"	9' 4"	9' 8"	400	400	400	400	400	400	400	400	374	332	297	267	241	218	198
		18	8' 10"	10' 4"	10' 8"	400	400	400	400	400	400	400	400	400	400	389	350	317	287	262
		16	9' 7"	11' 9"	12' 1"	400	400	400	400	400	400	400	400	400	400	400	400	394	358	326
5	41	22	6' 4"	7' 5"	7' 6"	400	400	400	400	400	400	400	400	361	321	287	257	232	209	190
		20	7' 6"	8' 6"	8' 10"	400	400	400	400	400	400	400	400	400	388	347	312	282	255	232
		18	8' 6"	9' 12"	10' 4"	400	400	400	400	400	400	400	400	400	400	400	400	371	337	307
		16	9' 3"	11' 4"	11' 8"	400	400	400	400	400	400	400	400	400	400	400	400	400	400	383
5.5	46	22	6' 1"	7' 1"	7' 2"	400	400	400	400	400	400	400	400	400	367	328	294	265	240	217
		20	7' 2"	8' 2"	8' 6"	400	400	400	400	400	400	400	400	400	400	398	358	323	292	266
		18	8' 3"	9' 7"	9' 11"	400	400	400	400	400	400	400	400	400	400	400	400	400	386	352
		16	8' 11"	10' 11"	11' 3"	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
6	50	22	5' 11"	6' 11"	7' 0"	400	400	400	400	400	400	400	400	400	400	371	333	300	271	246
		20	7' 0"	7' 11"	8' 3"	400	400	400	400	400	400	400	400	400	400	400	400	365	331	301
		18	8' 0"	9' 4"	9' 8"	400	400	400	400	400	400	400	400	400	400	400	400	400	400	399
		16	8' 8"	10' 7"	10' 11"	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400

Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

2” COMPOSITE DECK



HELPFUL HINT:

2” Composite Deck is used when the spans and loads exceed the capability of 1-1/2” Composite Deck.

SECTION PROPERTIES AND FLEXURAL RESISTANCE (BARE DECK)

							ASD (Ω = 1.67)			
Profile	Gauge	Design Thickness (inches)	Weight (psf)	Fy ksi	Se + (inch3) per foot	Se - (inch3) per foot	Mp/Ω inch-lbs per ft	Mn/Ω inch-lbs per foot	Id + (inch4) per ft.	Id - (inch4) per ft.
2x12	**22**	0.0295	1.6	50	0.238	0.25	7133	7492	0.291	0.273
	20	0.0358	1.9	50	0.317	0.331	9491	9920	0.368	0.350
	18	0.0474	2.5	50	0.467	0.479	13982	14341	0.508	0.493
	16	0.0598	3.2	50	0.608	0.607	18204	18164	0.650	0.643

SHEAR AND WEB CRIPPLING (BARE DECK - 50 KSI)

			Web Crippling (Rn/Ω), lbs/ft One Flange Loading End Bearing			Web Crippling (Rn/Ω), lbs/ft One Flange Loading Interior Bearing		
Profile	Gauge	Vn/Ω lbs per ft	2"	3"	4"	2"	3"	4"
2x12	**22**	1710	402	463	515	628	710	780
	20	2490	574	658	729	901	1014	1110
	18	3400	958	1091	1203	1519	1698	1849
	16	4273	1462	1656	1820	2340	2600	2820

All section properties and ASD flexural strengths are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

2” COMPOSITE DECK

Load Tables (psf)

ASD Uniform Superimposed Downward Loads

Span Cond.	Gauge	6'-0	7'-0	8'-0	9'-0	10'-0	11'-0	12'-0	13'-0	14'-0	15'-0	16'-0
Single	22	132	97	74	59	48	39	33	28	24	21	19
	20	176	129	99	78	63	52	44	37	32	28	25
	18	259	190	146	115	93	77	65	55	48	41	36
	16	337	248	190	150	121	100	84	72	62	54	47
Double	22	139	102	78	62	50	41	35	30	25	22	20
	20	184	135	103	82	66	55	46	39	34	29	26
	18	266	195	149	118	96	79	66	57	49	42	37
	16	336	247	189	149	121	100	84	72	62	54	47
Triple	22	173	127	98	77	62	52	43	37	32	28	24
	20	230	169	129	102	83	68	57	49	42	37	32
	18	332	244	187	148	120	99	83	71	61	53	47
	16	420	309	237	187	151	125	105	90	77	67	59

Notes:

All section properties and ASD ($\Omega = 1.67$) uniform loads are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

Loads shown in tables are uniformly distributed superimposed loads in psf. Span length assumes center-to-center spacing of supports. Tabulated loads shall not be increased by assuming clear span dimensions.

Bending Moment formulae used for flexural stress limitations are:

Simple and Two Span
$M = (w\ell^2) / 8$

Three Span or More
$M = (w\ell^2) / 10$

Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

Uniform Superimposed Service Load that Causes L/240 Deflection

Span Cond.	Gauge	6'-0	7'-0	8'-0	9'-0	10'-0	11'-0	12'-0	13'-0	14'-0	15'-0	16'-0
Single	22	83	52	35	25	18	13	10	8	7	5	4
	20	106	67	45	32	23	17	13	10	8	7	6
	18	150	94	63	44	32	24	19	15	12	10	8
	16	196	123	83	58	42	32	24	19	15	13	10
Double	22	200	126	84	59	43	32	25	20	16	13	11
	20	256	161	108	76	55	42	32	25	20	16	14
	18	361	227	152	107	78	59	45	35	28	23	19
	16	471	296	199	139	102	76	59	46	37	30	25
Triple	22	157	99	66	46	34	25	20	15	12	10	8
	20	200	126	85	59	43	33	25	20	16	13	11
	18	283	178	119	84	61	46	35	28	22	18	15
	16	368	232	155	109	80	60	46	36	29	24	19

Notes:

For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

2” COMPOSITE DECK

Construction Span and Composite Deck-Slab Allowable Superimposed Load Tables

Normal Weight Concrete (145 pcf)

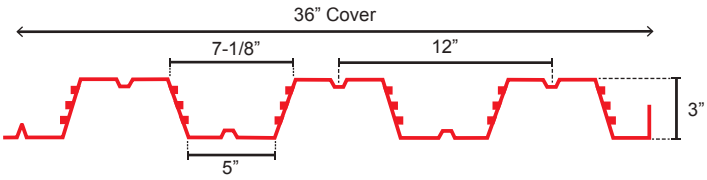
Normal Weight Concrete (145 pcf)			Maximum Unshored Clear Span			Superimposed Live Load in Pounds per Square Foot														
Slab Thickness (Inches)	Weight (psf)	Gauge	1 Span	2 Span	3 Span	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	39	22	7' 10"	9' 2"	9' 3"	318	274	238	209	184	163	144	129	116	104	94	84	76	69	63
		20	9' 6"	10' 7"	10' 11"	385	332	289	254	224	199	177	159	143	129	116	105	96	87	79
		18	10' 8"	12' 9"	13' 2"	400	400	380	334	295	263	235	211	190	172	156	142	130	119	109
		16	11' 7"	14' 4"	14' 10"	400	400	400	400	368	328	294	264	239	217	197	180	165	151	139
4.5	45	22	7' 6"	8' 9"	8' 10"	387	334	290	254	224	198	176	158	141	127	115	104	94	85	77
		20	9' 0"	10' 1"	10' 5"	400	400	352	309	272	242	216	193	174	157	142	129	117	107	98
		18	10' 2"	12' 2"	12' 6"	400	400	400	400	359	319	286	257	232	210	191	174	159	145	133
		16	11' 0"	13' 8"	14' 1"	400	400	400	400	400	398	357	321	290	264	240	219	201	184	169
5	51	22	7' 2"	8' 4"	8' 5"	400	395	344	301	266	235	210	187	168	151	137	124	112	102	93
		20	8' 9"	10' 4"	10' 9"	400	400	400	366	323	287	256	230	207	187	169	154	140	127	117
		18	9' 9"	11' 7"	12' 0"	400	400	400	400	400	379	339	305	275	249	227	207	189	173	159
		16	10' 7"	13' 1"	13' 6"	400	400	400	400	400	400	400	382	345	313	285	261	239	219	202
5.5	57	22	6' 10"	8' 0"	8' 1"	400	400	400	350	309	274	244	218	196	177	160	144	131	119	109
		20	8' 3"	9' 3"	9' 7"	400	400	400	400	376	334	298	267	241	218	197	179	163	149	136
		18	9' 4"	11' 2"	11' 6"	400	400	400	400	400	400	395	355	320	290	264	241	220	202	185
		16	10' 2"	12' 6"	13' 0"	400	400	400	400	400	400	400	400	400	365	333	304	278	256	236
6	63	22	6' 8"	7' 9"	7' 10"	400	400	400	400	353	313	279	250	224	202	183	166	150	137	125
		20	7' 11"	8' 11"	9' 3"	400	400	400	400	400	382	341	306	276	249	226	205	187	171	156
		18	9' 1"	10' 9"	11' 1"	400	400	400	400	400	400	400	400	367	333	302	276	252	231	213
		16	9' 10"	12' 1"	12' 6"	400	400	400	400	400	400	400	400	400	400	381	348	319	294	270
6.5	69	22	6' 5"	7' 5"	7' 6"	400	400	400	400	398	353	315	282	253	228	207	187	170	155	141
		20	7' 8"	8' 7"	8' 11"	400	400	400	400	400	400	385	345	311	281	255	232	212	193	177
		18	8' 9"	10' 4"	10' 9"	400	400	400	400	400	400	400	400	400	376	342	312	285	262	241
		16	9' 7"	11' 8"	12' 1"	400	400	400	400	400	400	400	400	400	400	400	394	361	332	306

Light Weight Concrete (115 pcf)

Light Weight Concrete (115 pcf)			Maximum Unshored Clear Span			Superimposed Live Load in Pounds per Square Foot														
Slab Thickness (Inches)	Weight (psf)	Gauge	1 Span	2 Span	3 Span	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	31	22	8' 5"	9' 11"	10' 0"	309	267	232	204	180	160	142	128	115	103	93	85	77	70	64
		20	10' 3"	11' 5"	11' 9"	372	322	281	247	218	194	173	156	140	127	115	105	95	87	80
		18	11' 6"	13' 8"	14' 2"	400	400	366	322	285	254	228	205	185	168	153	139	127	117	107
		16	12' 6"	15' 5"	15' 11"	400	400	400	398	353	315	282	254	230	209	191	174	160	147	135
4.5	35	22	8' 2"	9' 6"	9' 8"	377	326	284	249	220	196	175	156	141	127	115	104	95	87	79
		20	9' 10"	11' 0"	11' 4"	400	392	342	301	266	237	212	190	172	155	141	128	117	107	98
		18	11' 0"	13' 2"	13' 8"	400	400	400	392	348	310	278	250	226	205	187	171	156	143	132
		16	12' 0"	14' 10"	15' 4"	400	400	400	400	400	383	344	310	281	255	233	213	195	180	166
5	39	22	7' 10"	9' 2"	9' 3"	400	387	338	297	262	233	208	187	168	152	138	125	114	104	95
		20	9' 7"	11' 5"	11' 10"	400	400	400	358	317	282	252	227	205	185	169	154	140	128	118
		18	10' 8"	12' 9"	13' 2"	400	400	400	400	400	369	331	298	269	245	223	204	187	171	158
		16	11' 7"	14' 4"	14' 10"	400	400	400	400	400	400	400	370	335	304	278	254	233	215	198
5.5	44	22	7' 6"	8' 10"	8' 11"	400	400	393	345	305	271	242	218	196	177	161	146	133	122	111
		20	9' 1"	10' 2"	10' 6"	400	400	400	400	369	328	294	264	239	216	196	179	164	150	138
		18	10' 2"	12' 3"	12' 8"	400	400	400	400	400	400	385	347	314	285	260	237	218	200	184
		16	11' 1"	13' 9"	14' 3"	400	400	400	400	400	400	400	400	391	355	324	297	273	251	232
6	48	22	7' 4"	8' 6"	8' 7"	400	400	400	395	350	311	278	250	225	204	185	168	153	140	128
		20	8' 9"	9' 10"	10' 2"	400	400	400	400	400	377	337	303	274	248	226	206	188	173	159
		18	9' 11"	11' 10"	12' 3"	400	400	400	400	400	400	400	398	361	328	299	273	250	230	212
		16	10' 9"	13' 4"	13' 10"	400	400	400	400	400	400	400	400	400	400	373	341	314	289	267
6.5	53	22	7' 1"	8' 3"	8' 4"	400	400	400	400	395	351	314	282	254	230	209	190	173	159	145
		20	8' 5"	9' 6"	9' 10"	400	400	400	400	400	400	381	342	309	280	255	233	213	195	179
		18	9' 7"	11' 5"	11' 10"	400	400	400	400	400	400	400	400	400	370	338	309	283	260	240
		16	10' 5"	12' 11"	13' 4"	400	400	400	400	400	400	400	400	400	400	400	386	355	327	302

Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

3” COMPOSITE DECK



HELPFUL HINT:

3” Composite Deck is used when the spans and loads exceed the capability of 1-1/2” Composite Deck.

SECTION PROPERTIES AND FLEXURAL RESISTANCE (BARE DECK)

							ASD (Ω = 1.67)			
Profile	Gauge	Design Thickness (inches)	Weight (psf)	Fy ksi	Se + (inch3) per foot	Se - (inch3) per foot	Mp/Ω inch-lbs per ft	Mn/Ω inch-lbs per foot	Id + (inch4) per ft.	Id - (inch4) per ft.
3x12	22	0.0295	1.7	50	0.398	0.409	11904	12238	0.708	0.701
	20	0.0358	2.1	50	0.522	0.538	15639	16098	0.892	0.881
	18	0.0474	2.7	50	0.778	0.785	23283	23503	1.236	1.218
	16	0.0598	3.5	50	0.997	0.993	29840	29721	1.570	1.554

SHEAR AND WEB CRIPPLING (BARE DECK - 50 KSI)

			Web Crippling (Rn/Ω), lbs/ft One Flange Loading End Bearing			Web Crippling (Rn/Ω), lbs/ft One Flange Loading Interior Bearing		
Profile	Gauge	Vn/Ω lbs per ft	2"	3"	4"	2"	3"	4"
3x12	22	1885	406	468	520	668	756	829
	20	3062	583	669	741	960	1080	1182
	18	5137	982	1118	1234	1619	1810	1971
	16	7062	1508	1708	1877	2495	2773	3008

All section properties and ASD flexural strengths are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

3” COMPOSITE DECK

Load Tables (psf)

ASD Uniform Superimposed Downward Loads

Span Cond.	Gauge	6'-0	7'-0	8'-0	9'-0	10'-0	11'-0	12'-0	13'-0	14'-0	15'-0	16'-0
Single	22	220	162	124	98	79	66	55	47	40	35	31
	20	290	213	163	129	104	86	72	62	53	46	41
	18	431	317	243	192	155	128	108	92	79	69	61
	16	553	406	311	246	199	164	138	118	101	88	78
Double	22	227	166	127	101	82	67	57	48	42	36	32
	20	298	219	168	132	107	89	75	64	55	48	42
	18	435	320	245	193	157	129	109	93	80	70	61
	16	550	404	310	245	198	164	138	117	101	88	77
Triple	22	283	208	159	126	102	84	71	60	52	45	40
	20	373	274	210	166	134	111	93	79	68	60	52
	18	544	400	306	242	196	162	136	116	100	87	77
	16	688	505	387	306	248	205	172	147	126	110	97

Notes:

All section properties and ASD ($\Omega = 1.67$) uniform loads are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

Loads shown in tables are uniformly distributed superimposed loads in psf. Span length assumes center-to-center spacing of supports. Tabulated loads shall not be increased by assuming clear span dimensions.

Bending Moment formulae used for flexural stress limitations are:

Simple and Two Span
$M = (w\ell^2) / 8$

Three Span or More
$M = (w\ell^2) / 10$

Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

Uniform Superimposed Service Load that Causes L/240 Deflection

Span Cond.	Gauge	6'-0	7'-0	8'-0	9'-0	10'-0	11'-0	12'-0	13'-0	14'-0	15'-0	16'-0
Single	22	202	127	85	60	44	33	25	20	16	13	11
	20	258	163	109	77	56	42	32	25	20	17	14
	18	366	230	154	108	79	59	46	36	29	23	19
	16	470	296	198	139	102	76	59	46	37	30	25
Double	22	485	306	205	144	105	79	61	48	38	31	26
	20	622	392	262	184	134	101	78	61	49	40	33
	18	881	555	372	261	190	143	110	87	69	56	46
	16	1132	713	478	335	244	184	141	111	89	72	60
Triple	22	380	239	160	113	82	62	47	37	30	24	20
	20	487	307	205	144	105	79	61	48	38	31	26
	18	689	434	291	204	149	112	86	68	54	44	36
	16	886	558	374	262	191	144	111	87	70	57	47

Notes:

For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

3” COMPOSITE DECK

Construction Span and Composite Deck-Slab Allowable Superimposed Load Tables

Normal Weight Concrete (145 pcf)

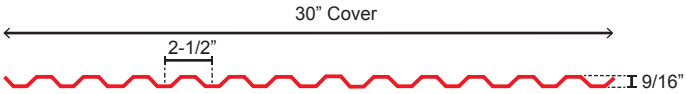
Normal Weight Concrete (145 pcf)			Maximum Unshored Clear Span			Superimposed Live Load in Pounds per Square Foot														
Slab Thickness (Inches)	Weight (psf)	Gauge	1 Span	2 Span	3 Span	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	46	22	10' 3"	11' 1"	11' 6"	305	267	235	208	185	166	149	134	121	109	99	90	82	74	68
		20	11' 11"	12' 9"	13' 2"	370	325	287	255	227	204	183	165	150	136	124	113	103	94	86
		18	13' 4"	15' 5"	15' 11"	400	400	379	337	302	271	245	222	202	184	168	154	141	130	120
		16	14' 5"	17' 4"	17' 11"	400	400	400	400	377	339	307	278	253	232	212	195	179	165	153
5.5	52	22	9' 10"	10' 8"	11' 0"	358	314	276	245	218	195	175	158	142	129	117	106	97	88	81
		20	11' 5"	12' 3"	12' 7"	400	381	336	299	267	239	215	195	176	160	146	133	122	111	102
		18	12' 9"	14' 9"	15' 3"	400	400	400	395	353	318	287	260	236	216	197	181	166	153	141
		16	13' 10"	16' 7"	17' 2"	400	400	400	400	400	397	359	326	297	271	249	228	210	194	179
6	58	22	9' 5"	10' 3"	10' 7"	400	363	320	284	253	226	203	183	165	150	136	124	113	103	94
		20	11' 3"	12' 9"	13' 2"	400	400	389	346	309	277	249	225	204	186	169	154	141	129	119
		18	12' 4"	14' 2"	14' 8"	400	400	400	400	400	367	332	301	274	249	228	209	192	177	163
		16	13' 4"	15' 11"	16' 6"	400	400	400	400	400	400	400	377	344	314	288	264	244	225	208
6.5	64	22	9' 0"	9' 10"	10' 2"	400	400	365	324	289	259	232	209	189	172	156	142	129	118	108
		20	10' 8"	11' 4"	11' 8"	400	400	400	395	353	316	285	258	234	212	194	177	162	148	136
		18	11' 11"	13' 8"	14' 1"	400	400	400	400	400	400	379	343	312	285	261	239	220	202	187
		16	12' 11"	15' 4"	15' 10"	400	400	400	400	400	400	400	400	392	359	329	302	279	257	238
7	70	22	8' 9"	9' 6"	9' 10"	400	400	400	365	326	292	262	237	214	194	177	161	147	134	123
		20	10' 3"	10' 11"	11' 3"	400	400	400	400	398	357	322	291	264	240	219	200	183	168	154
		18	11' 7"	13' 2"	13' 8"	400	400	400	400	400	400	400	388	353	322	295	270	249	229	211
		16	12' 6"	14' 10"	15' 4"	400	400	400	400	400	400	400	400	400	400	372	342	315	291	269
7.5	76	22	8' 5"	9' 3"	9' 6"	400	400	400	400	364	326	293	265	239	217	198	180	164	150	138
		20	9' 11"	10' 7"	10' 11"	400	400	400	400	400	399	359	325	295	268	245	224	205	188	173
		18	11' 3"	12' 9"	13' 2"	400	400	400	400	400	400	400	400	394	360	329	302	278	256	237
		16	12' 2"	14' 4"	14' 10"	400	400	400	400	400	400	400	400	400	400	400	382	352	326	301

Light Weight Concrete (115 pcf)

Light Weight Concrete (115 pcf)			Maximum Unshored Clear Span			Superimposed Live Load in Pounds per Square Foot														
Slab Thickness (Inches)	Weight (psf)	Gauge	1 Span	2 Span	3 Span	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	37	22	11' 2"	12' 0"	12' 4"	297	261	231	205	183	164	147	133	120	109	99	91	83	76	69
		20	12' 10"	13' 9"	14' 2"	359	316	279	249	222	200	180	163	148	135	123	112	103	95	87
		18	14' 4"	16' 7"	17' 2"	400	400	367	327	293	264	238	216	197	180	165	151	139	128	118
		16	15' 6"	18' 8"	19' 3"	400	400	400	400	363	328	297	270	246	225	206	190	175	162	150
5.5	42	22	10' 8"	11' 6"	11' 10"	349	307	271	241	215	193	174	157	142	129	117	107	98	90	82
		20	12' 4"	13' 2"	13' 7"	400	371	328	292	261	235	212	192	174	158	145	132	121	112	103
		18	13' 8"	15' 11"	16' 5"	400	400	400	383	343	309	279	253	231	211	193	177	163	151	139
		16	14' 10"	17' 11"	18' 6"	400	400	400	400	400	383	347	315	288	263	242	222	205	189	176
6	47	22	10' 2"	11' 0"	11' 5"	400	355	314	279	249	224	201	182	165	150	136	125	114	104	96
		20	12' 3"	14' 1"	14' 7"	400	400	379	338	302	272	245	222	202	184	168	154	141	130	119
		18	13' 2"	15' 4"	15' 10"	400	400	400	400	397	357	323	293	267	244	224	205	189	175	161
		16	14' 4"	17' 2"	17' 9"	400	400	400	400	400	400	400	365	333	305	280	257	237	220	203
6.5	49	22	10' 0"	10' 10"	11' 3"	400	400	360	321	287	257	232	210	190	173	158	145	132	122	112
		20	11' 8"	12' 6"	12' 11"	400	400	400	388	347	312	282	256	232	212	194	178	163	150	139
		18	13' 0"	15' 1"	15' 7"	400	400	400	400	400	400	371	337	307	281	257	237	218	201	186
		16	14' 1"	16' 11"	17' 6"	400	400	400	400	400	400	400	400	382	350	322	296	273	253	235
7	52	22	9' 10"	10' 8"	11' 0"	400	400	400	363	325	292	263	238	216	197	180	165	151	139	128
		20	11' 5"	12' 3"	12' 7"	400	400	400	400	393	354	320	290	264	241	220	202	186	171	158
		18	12' 9"	14' 9"	15' 3"	400	400	400	400	400	400	400	381	348	318	292	269	248	229	212
		16	13' 10"	16' 7"	17' 2"	400	400	400	400	400	400	400	400	400	397	365	336	310	287	266
7.5	59	22	9' 4"	10' 2"	10' 6"	400	400	400	400	361	325	293	265	241	219	200	183	168	154	142
		20	11' 0"	11' 8"	12' 1"	400	400	400	400	400	394	356	323	294	268	245	225	207	190	176
		18	12' 3"	14' 1"	14' 7"	400	400	400	400	400	400	400	400	388	355	325	299	276	255	236
		16	13' 3"	15' 10"	16' 4"	400	400	400	400	400	400	400	400	400	400	400	375	346	320	297

Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

9/16” NON-COMPOSITE DECK



Helpful Hint:

The 9/16" Standard Form Deck is commonly used as formwork for lightweight concrete slabs in commercial and industrial applications. With a low rib height and 30" coverage, it offers efficient and cost-effective structural support.

Section Properties and Flexural Resistance (Bare Deck)

							ASD (Ω = 1.67)			
Profile	Gauge	Design Thickness (inches)	Weight (psf)	Fy ksi	Se + (inch3) per foot	Se - (inch3) per foot	Mp/Ω inch-lbs per ft	Mn/Ω inch-lbs per foot	Id + (inch4) per ft.	Id - (inch4) per ft.
9/16	**26**	0.0179	1	60	0.038	0.037	1129	1123	0.011	0.011
	24	0.0239	1.2	60	0.050	0.050	1493	1488	0.015	0.015
	22	0.0295	1.4	60	0.061	0.061	2186	2183	0.018	0.018
	20	0.0358	1.6	60	0.073	0.073	2627	2626	0.024	0.024

Shear and Web Crippling (Bare Deck - 50 KSI)

			Web Crippling (Rn/Ω), lbs/ft One Flange Loading End Bearing			Web Crippling (Rn/Ω), lbs/ft One Flange Loading Interior Bearing		
Profile	Gauge	Vn/Ω lbs per ft	1-1/2"	2"	3"	1-1/2"	2"	3"
9/16	**26**	1688	634	702	817	780	854	977
	24	2293	1072	1182	1367	1391	1514	1721
	22	2824	1570	1725	1986	2102	2280	2579
	20	3417	2227	2440	2797	3062	3310	3726

All section properties and ASD flexural strengths are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

9/16" NON-COMPOSITE DECK

Load Tables (psf)

ASD Uniform Superimposed Downward Loads

Span Cond.	Gauge	2'-0	2'-6	3'-0	3'-6	4'-0	4'-6	5'-0	5'-6	6'-0	6'-6	7'-0
Single	26	188	120	84	61	47	37	30	25	21	18	15
	24	249	159	111	81	62	49	40	33	28	24	20
	22	364	233	162	119	91	72	58	48	40	34	30
	20	438	280	195	143	109	86	70	58	49	41	36
Double	26	224	143	100	73	56	44	36	30	25	21	18
	24	297	190	132	97	74	59	48	39	33	28	24
	22	364	233	162	119	91	72	58	48	40	34	30
	20	438	280	194	143	109	86	70	58	49	41	36
Triple	26	280	179	125	92	70	55	45	37	31	27	23
	24	371	238	165	121	93	73	59	49	41	35	30
	22	455	291	202	149	114	90	73	60	51	43	37
	20	547	350	243	179	137	108	88	72	61	52	45

Notes:

All section properties and ASD ($\Omega = 1.67$) uniform loads are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016.

Loads shown in tables are uniformly distributed superimposed loads in psf. Span length assumes center-to-center spacing of supports. Tabulated loads shall not be increased by assuming clear span dimensions.

Bending Moment formulae used for flexural stress limitations are:

Simple and Two Span
$M = (w\ell^2) / 8$

Three Span or More
$M = (w\ell^2) / 10$

Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

Uniform Superimposed Service Load that Causes L/240 Deflection

Span Cond.	Gauge	2'-0	2'-6	3'-0	3'-6	4'-0	4'-6	5'-0	5'-6	6'-0	6'-6	7'-0
Single	26	92	47	27	17	11	8	6	4	3	3	2
	24	121	62	36	23	15	11	8	6	4	4	3
	22	151	77	45	28	19	13	10	7	6	4	4
	20	197	101	58	37	25	17	13	9	7	6	5
Double	26	221	113	66	41	28	19	14	11	8	6	5
	24	292	150	87	55	37	26	19	14	11	9	7
	22	364	186	108	68	45	32	23	17	13	11	8
	20	474	243	141	88	59	42	30	23	18	14	11
Triple	26	173	89	51	32	22	15	11	8	6	5	4
	24	229	117	68	43	29	20	15	11	8	7	5
	22	285	146	84	53	36	25	18	14	11	8	7
	20	371	190	110	69	46	33	24	18	14	11	9

Notes:

For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

9/16” NON-COMPOSITE DECK

Construction Span and Composite Deck-Slab Allowable Superimposed Load Tables

Normal Weight Concrete (145 pcf)

Slab Thickness (Inches)	Weight (psf)	Gauge	Maximum Unshored Clear Span		
			1 Span	2 Span	3 Span
2	23	26	2' 2"	2' 7"	2' 8"
		24	2' 9"	3' 4"	3' 4"
		22	3' 9"	4' 6"	4' 7"
		20	4' 4"	5' 3"	5' 3"
2.5	29	26	2' 1"	2' 6"	2' 7"
		24	2' 8"	3' 2"	3' 3"
		22	3' 7"	4' 4"	4' 4"
		20	4' 2"	4' 11"	5' 0"
3	35	26	2' 0"	2' 5"	2' 6"
		24	3' 1"	3' 8"	3' 9"
		22	3' 6"	4' 1"	4' 2"
		20	3' 11"	4' 9"	4' 9"
3.5	41	26	1' 12"	2' 4"	2' 5"
		24	2' 6"	2' 11"	3' 0"
		22	3' 4"	3' 11"	4' 0"
		20	3' 9"	4' 6"	4' 7"
4	47	26	1' 11"	2' 4"	2' 4"
		24	2' 5"	2' 10"	2' 11"
		22	3' 3"	3' 10"	3' 10"
		20	3' 7"	4' 4"	4' 5"
4.5	53	26	1' 11"	2' 3"	2' 3"
		24	2' 4"	2' 9"	2' 10"
		22	3' 1"	3' 8"	3' 9"
		20	3' 5"	4' 3"	4' 3"

Light Weight Concrete (115 pcf)

Slab Thickness (Inches)	Weight (psf)	Gauge	Maximum Unshored Clear Span		
			1 Span	2 Span	3 Span
2	19	26	2' 2"	2' 8"	2' 8"
		24	2' 10"	3' 5"	3' 5"
		22	3' 11"	4' 8"	4' 9"
		20	4' 6"	5' 5"	5' 6"
2.5	23	26	2' 2"	2' 7"	2' 8"
		24	2' 9"	3' 4"	3' 4"
		22	3' 9"	4' 6"	4' 7"
		20	4' 4"	5' 3"	5' 3"
3	28	26	2' 1"	2' 6"	2' 7"
		24	3' 4"	3' 11"	3' 12"
		22	3' 8"	4' 4"	4' 5"
		20	4' 2"	5' 0"	5' 1"
3.5	33	26	2' 1"	2' 6"	2' 6"
		24	2' 7"	3' 1"	3' 2"
		22	3' 6"	4' 2"	4' 3"
		20	4' 0"	4' 10"	4' 10"
4	38	26	2' 0"	2' 5"	2' 5"
		24	2' 6"	3' 0"	3' 1"
		22	3' 5"	4' 0"	4' 1"
		20	3' 10"	4' 8"	4' 8"
4.5	42	26	1' 12"	2' 4"	2' 5"
		24	2' 6"	2' 11"	3' 0"
		22	3' 4"	3' 11"	4' 0"
		20	3' 8"	4' 6"	4' 7"

Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

1. Scope

The requirements of this section shall govern only ribbed steel roof deck construction of varying configurations used for the support of roofing materials, design live loads and SDI construction loads shown on page 3.

Commentary:
Suspended ceilings, light fixtures, ducts, or other utilities shall not be supported by the steel deck.

2. Materials

2.1 Steel Roof Deck:

The steel roof deck units and accessories shall be fabricated from steel conforming to Section A3 of the latest edition, (1996) of the American Iron and Steel Institute, Specifications for the Design of Cold Formed Steel Structural Members. The steel used shall have a minimum yield strength of 33 ksi (230 MPa).

2.2 Tolerances:

Panel Length:
Plus or minus 1/2 inch (13 mm).

Thickness:
Shall not be less than 95% of the design thickness.

Panel Cover Width:
Minus 3/8 inch (10 mm), plus 3/4 inch (20 mm).

Panel Camber and/or Sweep:
1/4 inch in 10 foot length (6 mm in 3 meters).

Panel End Out of Square:
1/8 inch per foot (3 mm in 300 mm) of panel width.

Commentary:
The above tolerances reflect the fabrication processes for steel deck products. Variation in cover width tolerances may vary due to trucking, storage, and handling. The steel roof deck shall be manufactured from steel conforming to ASTM Designation A611-97, Grades C, D or E or from A653/A 653M-97 Structural Quality grade SS33 or higher. If the published product literature does not show theuncoated steel thickness in decimal inches (or millimeters) but lists gage or type numbers, then the thickness of steel before coating with paint or metal shall be in conformance with the following table:

Type No.	Design Thickness		Minimum Thickness	
	In.	mm	In.	mm
22	.0295	0.75	.028	0.70
20	.0358	0.90	.034	0.85
18	.0474	1.20	.045	1.15
16	.0598	1.50	.057	1.45

3. Design

3.1a
Allowable Stress Design(ASD):

The maximum working stress shall not exceed 20 ksi (140 MPa). The unit design stress shall in no case exceed the minimum yield strength of the steel divided by 1.65 for specific design uniform loads. The unit design stress shall be increased 33% for temporary concentrated loads provided the deck thus required is no less than that required for the specific design uniform loads.

3.1b
Load Resistance Factor Design (LRFD):

The load and resistance factors and the load combinations shall be as required by the AISI specification.

Commentary:
Either ASD or LRFD design is acceptable to the Steel Deck Institute. If LRFD uniform load tables are desired, the SDI Roof Deck Construction (1999) is a source.

3.2 Section Properties:

Structural properties of roof deck sections shall be computed in accordance with the American Iron and Steel Institute (AISI) Specification for the Design of Cold-Formed Steel Structural Members, 1996 edition.

Commentary:
Arbitrarily assumed effective compression flange widths shall not be allowed. Testing shall not be used in lieu of the above in determination of vertical load carrying capacity of steel deck.

3.3 Load Tables:

Uniform loads determined for published tables shall be based on equal adjacent two and three span conditions and on single spans. Appropriate combinations of shear and bending shall be made to determine the published loads. Widths of 2" (50 mm) for end bearing and 4" (100 mm) for interior shall be used to check web crippling. Deflection coefficients shall be 0.013 for single spans, .0054 for double spans and .0069 for triple spans.

Commentary:
For deck layouts that provide more than three equal spans, the user can apply the loads published for three spans. Published uniform load tables do not apply for adjacent spans that differ in length by more than 10%.

3.4 Maximum Deflections:

Deflection of the deck shall not exceed L/240 or 1 inch (25 mm) whichever is less, under the uniformly distributed design live load. All spans are to be considered center-to-center of supports.

Commentary:
The adequacy of deck edge support details should be reviewed. At the building perimeter, or any other deck termination or direction change, occasional concentrated loading of the roof deck could result in temporary differences in deflection between the roof deck and the adjacent stationary building component. Supplemental support such as a perimeter angle may be warranted.

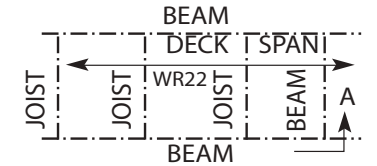
Construction & Maintenance Loads:

SPANS are governed by a maximum stress of 26 ksi (180 MPa) and a maximum deflection of L/240 with a 200-pound (0.89 kN) concentrated load at midspan on a 1'-0" (300 mm) wide section of deck. If the designer contemplates loads of greater magnitude, spans shall be decreased or the thickness of the steel increased as required. All loads shall be distributed by appropriate means to prevent damage to the completed assembly during construction.

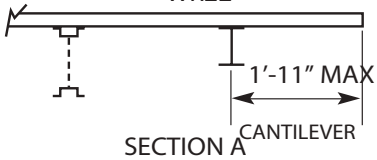
Cantilever Loads:

Construction phase load of 10 psf (0.48 kPa) on adjacent span and cantilever, plus 200 pound load (0.89 kN) at end of cantilever with a stress limit of 26 ksi (180 MPa)(ASD). Service load of 45 psf (2.15 kPa) on adjacent span and cantilever, plus 100 pound load (0.44 kN) at end of cantilever with a stress limit of 20 ksi (140 MPa)(ASD). Deflection limited to L/240 of adjacent span for interior span and deflection at end of cantilever to L/120 of overhang.

STEEL DECK CANTIILEVER
EXAMPLE: WR22



PARTIAL ROOF PLAN
WR22



SECTION A

Recommended Maximum Spans for Construction and Maintenance Loads Standard 1 1/2 Inch and 3 Inch Roof Deck						
			Span		Max. Recommended Spans Roof Deck Cantilever	
	Type	Span Condition	Ft.-In.	Meters	Ft.-In.	Meters
Narrow Rib Deck	NR22	1	3′-10″	1.15 m	1′-0″	.30 m
	NR22	2 or more	4′-9″	1.45 m		
	NR20	1	4′-10″	1.45 m	1′-2″	.35 m
	NR20	2 or more	5′-11″	1.80 m		
	NR18	1	5′-11″	1.80 m	1′-7″	.45 m
	NR18	2 or more	6′-11″	2.10 m		
Intermediate Rib Deck	IR22	1	4′-6″	1.35 m	1′-2″	.35 m
	IR22	2 or more	5′-6″	1.65 m		
	IR20	1	5′-3″	1.60 m	1′-5″	.40 m
	IR20	2 or more	6′-3″	1.90 m		
	IR18	1	6′-2″	1.85 m	1′-10″	.55 m
	IR18	2 or more	7′-4″	2.30 m		
Wide Rib Deck	WR22	1	5′-6″	1.65 m	1′-11″	.55 m
	WR22	2 or more	6′-6″	1.75 m		
	WR20	1	6′-3″	1.90 m	2′4″	.70 m
	WR20	2 or more	7′-5″	2.25 m		
	WR18	1	7′-6″	2.30 m	2′10″	.85 m
	WR18	2 or more	8′-10″	2.70 m		
Deep Rib Deck	3DR22	1	11′-0″	3.35 m	3′-5″	1.05 m
	3DR22	2 or more	13′-0″	3.95 m		
	3DR20	1	12′-6″	3.80 m	3′-11″	1.21 m
	3DR20	2 or more	14′-8″	4.45 m		
	3DR18	1	15′-0″	4.55 m	4′-9″	1.45 m
	3DR18	2 or more	17′-8″	5.40		

4. Installation & Site Storage

4.1 Site Storage:

Steel deck shall be stored off the ground with one end elevated to provide drainage, and shall be protected from the elements with a waterproof covering, ventilated to avoid condensation.

4.2 Deck Placement:

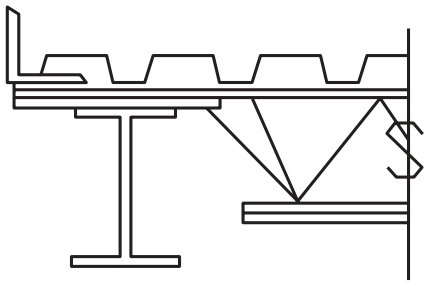
Place each deck unit on supporting structural frame. Adjust to final position with accurately aligned side laps and ends bearing on supporting members. On joist framing, be sure the appropriate end lap occurs over a top chord angle for proper anchorage.

Commentary:

Staggering roof deck end laps is not a recommended practice. The deck capacity is not increased by staggering the end laps, yet layout and erection costs are increased.

4.3 Lapped or Butted Ends:

Deck ends may be either butted or lapped over supports. Standard tolerance for ordered length is plus or minus 1/2 inch (13 mm).



Building Deck Edge or Interior Termination Condition

4.4 Anchorage:

Roof deck units shall be anchored to supporting members includingperimeter support steel and/or bearing walls by either welding or mechanical fasteners, to provide lateral stability to the top flange of the supporting structural members and to resist the following minimum gross uplifts; 45 pounds per square foot (2.15 kPa) for eave overhang; 30 pounds per square foot (1.44kPa) for all other roof areas. The dead load of the roof deck construction shall be deducted from the above forces. The location and number of fasteners required for satisfactory attachment of deck to supporting structural members are as follows: All side laps plus a sufficient number of interior ribs to limit the spacing between adjacent points of attachment to 18 inches (500 mm). Do not walk or stand on deck until these minimum attachments are accomplished at the structural supports. Deck units with spans greater than 5 feet (1.5 m) shall have side laps and perimeter edges (at perimeter support steel) fastened at midspan or 36 inches (1 m) intervals, whichever is smaller. Sidelap attachment shall progress from support to midspan. A perimeter deck system support parallel to deck flutes or ribs is necessary to provide for a minimum fastener spacing as specified. The design and detailing of this perimeter deck support system is the responsibility of the project designer.

Commentary:

The deck should be anchored as soon as possible to act as a working platform, to prevent blow off and slipoff from supports and to provide stability to deck system and frame. The designer should check the appropriate codes for the required uplift loading and show the required anchorage connections on the plans. If no information is shown on the plans, the uplift loads shown in paragraph 4.4 will be assumed. Sidelap fasteners can be welds, screws, crimps (button punching), or other methods approved by the designer. Welding sidelaps on thicknesses 0.028 inches (.7mm) or less may cause large burn holes and is not recommended. The objective of side lap fastening is to prevent differential sheet deflection. The five foot (1.5 m) limit on side lap spacing is based on experience.

The deck erector should not leave broken bundles or unattached deck at the end of the day as the wind may displace the sheets and cause injury to person or property. In the past, 1 1/2 inches (38 mm) of end bearing was the minimum; this is still a good "rule of thumb" that will, in general prevent slip off. If less than 1 1/2" inches (38 mm) of end bearing is available, or if high support reactions are expected, the design engineer should ask the deck manufacturer to check the deck web stress. In any case, the deck must be adequately attached to the structure to prevent slip off.

The SDI Diaphragm Design Manual, Second Edition, should be used to determine fastening requirements if the deck is to be designed to resist horizontal loads. The most stringent requirements, of either section 4.4 or, if applicable, the SDI Diaphragm Design Manual, should be used.

4.4a Welding:

All field welding of deck shall be in strict accordance with ANSI/AWS D1.3 Structural Welding Code - Sheet Steel. Each welder must demonstrate an ability to produce satisfactory welds using a procedure such as shown in the Steel Deck Institute Manual of Construction with Steel Deck or as described in ANSI/AWS D1.3. A minimum visible 5/8 inch (15 mm) diameter puddle weld or an elongated weld with an equal perimeter is required. Fillet welds, when used, shall be at least 1 inch (25 mm) long. Weld metal shall penetrate all layers of deck material at end laps and shall have good fusion to the supporting members. Welding washers shall be used on all deck units with a metal thickness less than 0.028 inches (0.7 mm). Welding washers shall be a minimum thickness of 0.056 inches (1.5 mm), 16 gage, and have a nominal 3/8 inch (10 mm) diameter hole. Care shall be exercised in the selection of electrodes and amperage to provide a positive weld and prevent high amperage blow holes.

Commentary:

The obligation is placed on the contractor to prepare welding procedure specifications and to qualify them before production use. These procedure specifications must include classification of the filler metal, it's size, and for each type of weld, it's melting rate or any other suitable means of current control indicative of melting rate, as applicable.

The welder qualification test requires each welder to prove the ability to produce satisfactory welds using these qualified procedures. The fact that the welder may have been successfully qualified on plate or pipe under the provisions of ANSI/AWS D1.1 Structural Welding Code -Steel, for structural welding, or on plate or pipe under the provisions of other codes governing the welding of specific products, does not qualify the welder for welding sheet steel.

The selections of welding rod and amperage are left to the individual welder. Welds are made from the top side of the deck, with the welder immediately following the placement crew. In general, stronger welds are obtained on 0.028 inches (.70 mm) or thicker deck without weld washers. Welds on deck less than 0.028 (.70mm) are stronger with washers.

4.4b Mechanical Fasteners:

Mechanical fasteners (powder-actuated, screws, pneumatically driven fasteners, etc.) are recognized as viable anchoring methods, provided the type and spacing of the fasteners satisfy the design criteria. Documentation in the form of test data, design calculations or design charts should be submitted by the fastener manufacturer as the basis for obtaining approval. The deck manufacturer may recommend additional fasteners to stabilize the given profile against sideslip of any unfastened ribs.

Commentary:

The allowable load value per fastener used to determine the maximum fastener spacing is based on a minimum structural support thickness of not less than 1/8 inch (3 mm) when power-actuated or pneumatically driven fasteners with 5/16 inch (8 mm) diameter minimum bearing surface (fastener head) are used. When the structural support thickness is less than 1/8 inch (3 mm), powder actuated or pneumatically driven fasteners shall not be used, but screws are acceptable.

5. Protective Coatings

5.1 Finishes:

All steel to be used for roof deck shall be galvanized, aluminized or prime painted. The roofdeck shall be free of grease and dirt prior to the coating.

Commentary:

The primer coat is intended to protect the steel for only a short period of exposure in ordinary atmospheric conditions and shall be considered an impermanent and provisional coating. Field painting of prime painted deck is recommended especially where deck is exposed. In corrosive or high moisture atmospheres, a galvanized finish is desirable in a G-60 (Z180) or G-90 (Z275) coating. In highly corrosive or chemical atmospheres or where reactive materials could be in contact with the steel deck, special care in specifying the finish should be used. In this case, individual manufacturers should be contacted. See important information Section 4.1. Insulation, page 7 of SDI Design Manual #29.

In most cases, deck welds are removed from a corrosive environment when the roof is installed and no weld touch up paint or cold galvanizing is necessary. In those instances where the welds are left exposed to a corrosive atmosphere, the weld should be wire brushed and coated with an approved substance.

5.2 Fireproofing:

The metal deck manufacturer shall not be responsible for the cleaning of the underside of metal deck to ensure bond of fireproofing. Adherence of fireproofing materials is dependent on many variables; the deck manufacturer (supplier) is not responsible for the adhesion or adhesive ability of the fireproofing.

6. Erection

Deck sheets will be placed in accordance with approved erection layout drawings supplied by the deck manufacturer and in conformance with the deck manufacturer's standards. End joints of sheets shall occur over supports. (See Section 4.4)

Commentary:

Openings greater than 25 square feet (2.3 m2) are generally located and shown on the detailed erection drawings, and deck will be provided to the job in lengths to accommodate the opening. Openings less than 25 square feet (2.3 m2) can be located and shown on the erection drawings and be decked over; the deck erector is to cut these openings as well as provide any skew cutting shown. It is extremely important that deck cantilevers and decked over areas are not overloaded. Openings in the deck and building edges must be protected by using OSHA approved methods. Openings not shown on the erection drawings, such as those required for stacks, conduits, plumbing, vents, etc. are to be cut, and reinforced if necessary, by the trades requiring the openings. Refer to the SDI Manual of Construction With Steel Deck for a reinforcing schedule.

7. Insulation

Insulation board shall be of sufficient strength and thickness to permit unsupported spans and edges over the deck's rib openings. Cementitious insulating fills shall be poured only over galvanized deck and shall be adequately vented. In all cases, the recommendations of the insulation manufacturer shall be followed.

CAUTION

Steel roof deck may be used in a variety of ways, some of which do not lend themselves to a standard "steel deck" analysis for span and loading. There are, in these cases, other criteria which must be considered besides that given by the Steel Deck Institute. Make sure that this investigation starts with a review of the applicable Codes and that any special conditions are included in the design.

SDI Specifications for Composite Steel Floor Deck

1. Scope

This specification pertains to composite steel floor deck. Composite steel floor deck is cold formed steel deck which acts as a permanent form and as the positive bending reinforcement for the structural concrete. When suitably fastened, the steel deck also acts as a working platform for the various trades. After the concrete hardens, the steel deck and the concrete are interlocked by the shape of the deck, mechanical means, surface bond, or by a combination of these means.

2. Materials

2.1 Composite Steel Deck:

Composite steel floor deck shall be fabricated from steel conforming to Section A3 of the 1996 edition of the American Iron and Steel Institute, Specifications for the Design of Cold Formed Steel Structural Members, (AISI Specifications). The steel used shall have a minimum yield point of 33 ksi (230 MPa).

2.1a: Tolerances:

Panel Length: Plus or minus 1/2 inch (12 mm).

Thickness:

Shall not be less than 95% of the design thickness.

Panel cover width:

Minus 3/8 inch (10 mm), plus 3/4 inch (20 mm).

Panel camber and/or sweep:

1/4 inch in 10 foot length (6 mm in 3 meters).

Panel end out of square:

1/8 inch per foot of panel width (10 mm per m).

Commentary:

Most composite steel floor deck is manufactured from steel conforming to ASTM Designation A611, Grades C & D or from A653-98a, Structural Steel.

If the published product literature does not show the uncoated steel thickness in decimal inches (or millimeters), but lists gage or type numbers, then the thickness of steel before coating with paint or metal shall be in conformance with the following table:

Type No.	Design Thickness		Minimum Thickness	
	In.	mm	In.	mm
22	.0295	0.75	.028	0.71
21	.0329	0.84	.031	0.79
20	.0358	0.91	.034	0.86
19	.0418	1.06	.040	1.01
18	.0474	1.20	.045	1.14
17	.0538	1.37	.045	1.30
16	.0598	1.52	.051	1.44

The tolerances reflect fabrication processes for steel deck products. Variation in cover width tolerances may be from trucking, storage or handling.

2.1b Finish:

The finish on the steel composite deck shall be as specified by the designer and be suitable for the environment of the structure.

Commentary:

Since the composite deck is the positive bending reinforcement for the slab, it must be designed to last the life of the structure; a minimum recommended finish is a galvanized coating as defined in ASTM A653-98a, G30 (Z090).

3. Design (Deck as Form)

3.1:

The section properties for the steel floor deck (as a form in bending) shall be computed in accordance with the AISI Specifications.

3.2a:

Allowable Stress Design (ASD): The interaction of shear and bending shall be considered in the calculations. Bending stress in the deck shall not exceed 0.6 times the yield strength with a maximum of 36 ksi (250 MPa) under the combined loads of wet concrete, deck, and the following construction live loads: 20 pounds per square foot uniform load (1 kPa) or 150 pound concentrated load on a 1'-0" wide section of deck (2.2 kN per m). See Figure 1.

3.2b:

Load and Resistance Factor Design (LRFD): The load factors for the construction shown in figure 1 and the resistance factors for bending, shear, and interior bearing shall be as required in the 1996 AISI Specification.

Commentary:

The loading shown in figure 1 is representative of the sequential loading of wet concrete on the form. The 150 pound load (per foot of width) is the result of distributing a 300 pound man over a 2 foot width. Experience has shown this to be a conservative distribution and, if welded wire reinforcing is present the distribution is greater than 2 feet. The metric equivalent of the 150 pound load is 2.2 kN per meter of width. For single span deck conditions, the ability to control the concrete placement may be restricted and a factor of 1.5 is applied to the concrete load to address this condition; however, in order to keep this 50% load increase within a reasonable limit, the increase is not to exceed 30 psf (1.44 kPa)

3.3:

Calculated theoretical deflection of the deck, as a form, shall be based on the load of the concrete (as determined by the design slab thickness) and the load from the steel deck, uniformly loaded on all spans, and shall be limited to L/180 or 3/4" (20 mm), whichever is smaller. Deflections shall be relative to supporting members. See Figure 2.

Commentary:

The deflection calculations do not take into account construction loads since these are considered as temporary loads. The deck is designed to always be in the elastic range so removal of temporary loads should allow the deck to recover. The structural steel also deflects under the loading of the wet concrete. The designer is urged to check the deflection of the total system especially if composite beams and girders are being used. If the designer wants to include additional concrete loading on the deck because of frame deflection, the additional load should be shown on the design drawings or stated in the deck part of the job specifications. The deck supplier is not responsible for frame deflection, nor for any cambering.

3.4:

Minimum bearing lengths shall be determined in accordance with the 1996 AISI Specification; a uniform loading case of wet concrete, plus deck, plus 20 psf (1 kPa) construction load shall be used. See Figure 3.

Commentary:

In the past, 1 1/2 inches (40 mm) of end bearing was the minimum; this is still a good "rule of thumb" that will, in general, prevent slip off. If less than 1 1/2 inches (40 mm) of end bearing is available, or if high support reactions are expected, then the designer should ask the deck manufacturer to check the deck web crippling strength. In any case, the deck must be adequately attached to the structure to prevent slip off.

4. Installation & Site Storage

4.1 Site Storage:

Steel Deck shall be stored off the ground with one end elevated to provide drainage and shall be protected from the elements with a water-proof covering, ventilated to avoid condensation.

4.2 Deck Placement:

Place each deck unit on supporting structural frame. Adjust to final position with accurately aligned side laps and ends bearing on supporting members.

Commentary:

Staggering floor deck end joints is not a recommended practice. The deck capacity as a form and the load capacity of the composite deck/slab system are not increased by staggering the ends, yet layout and erection costs are increased.

4.3 Butted Ends:

Deck sheets shall be butted over supports. Standard tolerance for ordered length is plus or minus 1/2 inch (12 mm).

Commentary:

Lapping composite deck ends can be difficult because shear lugs (web embossment) or profile shape can prevent a tight metal to metal fit. The space between sheets can make welded attachments more difficult. Gaps are acceptable at butted ends. If taping of butted ends is requested, it is not the responsibility of the deck manufacturer.

4.4 Anchorage:

Floor Deck units shall be anchored to supporting members including perimeter support steel and/or bearing walls by either welding or by mechanical fastening. This shall be done immediately after alignment. The minimum recommended attachments is defined in Section 4.4a. Do not walk or stand on deck until these minimum attachments are accomplished at the structural supports. Deck units with spans greater than five feet (1.5 m) shall have side laps and perimeter edges (at perimeter support steel) fastened at midspan or 36 inch (1 m) intervals, whichever distance is smaller. Sidelap attachment shall progress from the support to midspan.

Commentary:

This anchorage may be required to provide lateral stability to the top flange of the supporting structural members. The minimum attachment is to prevent slip off from supports and provide stability of the deck system. The deck should be anchored to act as a working platform and to prevent blow off. Side lap fasteners can be welds, screws, crimps (button punching), or other methods approved by the designer. Welding side laps on thicknesses 0.028 inches (0.7 mm) or less may cause large burn holes, and is not recommended.

The objective of side lap fastening is to prevent differential sheet deflection during concrete placing and therefore prevent side joints from opening. The five foot (1.5 m) limit on side lap spacing is based on experience. The deck contractor should not leave unattached deck at the end of the day, as wind may displace the sheets and cause injury to persons or property. The SDI Diaphragm Design Manual, Second Edition, should be used to determine fastening requirements if the deck will be designed to resist horizontal loads. The most stringent requirements, of either section 4.4 or, if applicable, the SDI Diaphragm Design Manual, should be used.

4.4a Welding:

All welding of deck shall be in strict accordance with ANSI/AWS D1.3 Structural Welding Code - Sheet Steel. Each welder must demonstrate an ability to produce satisfactory welds using a procedure such as shown in the SDI Manual of Construction with Steel Deck or as described in ANSI/AWS D1.3. A minimum visible 5/8 inch (15 mm) diameter puddle weld or equivalent is required at all edge ribs, plus a sufficient number of interior ribs to provide a maximum average spacing of 12 inches (300 mm). The maximum spacing between adjacent points of attachment shall not exceed 18 inches (460 mm). Fillet welds, when used, shall be at least 1 inch (25 mm) long. Weld metal shall penetrate all layers of deck material at end laps and shall have good fusion to the supporting members. Welding washers shall be used on all deck units with a metal thickness less than 0.028 inches (0.7 mm). Welding washers shall be a minimum thickness of 0.056 inches (1.5 mm, 16 gage) and have a nominal 3/8 inch (10 mm) diameter hole.

Commentary:

The welder may be qualified on plate or pipe under ANSI/AWS D1.1, Structural Welding Code - Steel, or under the provisions of other codes governing the welding of specific products, but may not be qualified for welding sheet steel. The layout, design, numbering or sizing of shear connectors is not the responsibility of the deck manufacturer. If studs are being applied through the deck onto structural steel, the stud welds can be used to replace the puddle welds. In general, stronger welds are obtained on 0.028 inches (0.7 mm) or thicker deck without weld washers. Welds on deck less than 0.028 inches (0.7 mm) are stronger with weld washers.

4.4b Mechanical Fasteners:

Mechanical fasteners (powder-actuated, screws, pneumatically driven fasteners, etc.) are recognized as viable anchoring methods, provided the type and spacing of the fasteners satisfies the design criteria. Documentation in the form of test data, design calculations, or design charts should be submitted by the fastener manufacturer as the basis for obtaining approval. The deck manufacturer may recommend additional fasteners to stabilize the given profile against sideslip of unfastened ribs.

Commentary:

When the fasteners are powder actuated or pneumatically driven, the allowable load value per fastener spacing is based on a minimum structural support thickness of not less than 1/8 inch (3 mm) and on the fastener providing a 5/16 inch (8 mm) diameter bearing surface (fastener head size). When the structural support thickness is less than 1/8 inch (3 mm), powder actuated or pneumatically driven fasteners shall not be used, but screws are acceptable.

5. Design Deck & Concrete as a Composite Unit

5.1 General:

The composite slab shall be designed as a reinforced concrete slab with the steel deck acting as the positive reinforcement. Slabs shall be designed as simple or continuous spans under uniform loads.

Commentary:

High concentrated loads, diaphragm loads, etc. require additional analysis. Horizontal load capacities can be checked by referring to the SDI Diaphragm Design Manual, Second Edition. Concentrated loads may be analyzed by the methods shown in the SDI Composite Deck Design Handbook, 1997. Most published live load tables are based on simple span analysis of the composite system; that is,the slab is assumed to crack over each support. If the designer wants a continuous slab, then negative reinforcing should be designed using conventional reinforced concrete design techniques. The welded wire mesh, chosen for temperature reinforcing (Section 5.5), does not usually supply enough area for continuity. The deck is not considered to be compression reinforcing.

Care should be used during the placement of loads on rolled-in hangar tabs for the support of ceilings so that approximate uniform loading is maintained. The individual manufacturer should be consulted for allowable loading on single rolled-in hangar tabs. Improper use of rolled-in hangar tabs could result in the overstressing of such tabs and/or the overloading of the composite deck slab.

5.2 Testing:
The deck manufacturer shall have performed, under the supervision of a professional engineer, a sufficient number of tests on the composite deck slab system to have verified composite behavior; or, the deck manufacturer shall have participated in the Steel Deck Institute research program used to establish the design criteria as shown in the SDI Composite Deck Design Handbook, 1992 or 1997; or, the deck manufacturer shall have submitted deck drawings and samples to the Steel Deck Institute for certification as composite deck.

5.2a Load Determination:
Using standard reinforced concrete design procedures the allowable superimposed load shall be found using appropriate load resistance design factors and applicable reduction factors based on the presence, absence, or spacing of shear studs on beams perpendicular to the deck as shown in the SDI Composite Deck Design Handbook,1997.

Commentary:
By using the reference analysis techniques or test results, the deck manufacturer determines the live loads that can be applied to the composite deck slab combination. The results are usually published as uniform load tables. The manufacturer may instead publish loads based on the results of the "shear bond" testing program and these loads would also be appropriate. For most applications, the deck thickness and profile is selected so that shoring is not required; the live load capacity of the composite system is usually more than adequate for the superimposed (live) loads. In calculating the section properties of the deck (under section 3.1 of these specifications), the AISI provisions may require that compression zones in the deck be reduced to an "effective width", but as tensile reinforcement, the total area of the cross section may be used. Coatings other than those tested may be investigated, and if there is evidence that their performance will be better than that of the tested product, additional testing may not be required. For example, it is well accepted that deck with light tight rust provides better shear bond than galvanized, thereforetested galvanized load capacities may be used for rusted decking.

5.3 Concrete:
Concrete shall be in accordance with the applicable sections of chapters 3, 4 and 5 of the ACI 318 Building Code Requirements for Reinforced Concrete. Minimum compressive strength (f'c) shall be 3 ksi (20 MPa) or as required for fire ratings or durability. Admixtures containing chloride salts shall not be used.

Commentary:
Load tables are generally calculated by using a concrete strength of 3 ksi (20 MPa). Composite slab capacities are not greatly affected by variations in concrete strength of 3 ksi (20 MPa). Composite slab capacities are not greatly affected by variations in concrete strength; but, if the strength falls below 3 ksi (20 MPa), it would be advisable to check shear stud strengths. Fire rating requirements may dictate the minimum concrete strength. The use of admixtures containing chloride salts is not allowed because the slabs will corrode the steel deck which has been designed as the slab reinforcement.

5.3a Minimum Cover:
The minimum concrete above the top of the floor deck shall be 2 inches (50 mm). When additional (negative bending) reinforcement is placed in the slab, the minimum cover of concrete above the reinforcing shall be 3/4 inch (20 mm).

5.4 Deflection:
Deflection of the composite slab shall not exceed L/360 under the superimposed load.

Commentary:
Live load deflections are seldom a design factor. The deflection of the slab/deck combination can best be predicted by using the average of the cracked and uncracked moments of inertia as determined by the transformed section method of analysis.

5.5 Temperature & Shrinkage Reinforcement:
Temperature and shrinkage reinforcement, consisting of welded wire fabric or reinforcing bars, shall have a minimum area of 0.00075 times the area of concrete above the deck (per foot or per meter of width), but shall not be less than the area provided by 6 x 6-W1.4 x W1.4 welded wire fabric. For those products so manufactured, shear transfer wires welded to the top of the deck may be considered to act as shrinkage or temperature reinforcement.

Commentary:
If welded wire mesh is used with a steel area given by the above formula, it will generally not be sufficient to be the total negative reinforcement; however, the mesh has shown that it does a good job of crack control especially if kept near the top of the slab (3/4 inch to 1 inch cover, 20 to 25 mm).

6. Construction Practice

All deck sheets shall have adequate bearing and fastening to all supports so as not to lose support during construction. Deck areas subject to heavy or repeated traffic, concentrated loads, impact loads, wheel loads, etc. shall be adequately protected by planking or other approved means to avoid overloading and/or damage. Damaged deck (sheets containing distortions or deformations caused by construction practices) shall be repaired, replaced, or shored to the satisfaction of the designer before placing concrete. The cost of repairing, replacing, or shoring of damaged units shall be the liability of the trade contractor responsible for the damage.

Commentary:
For temporary construction loads prior to concrete placement, it should be safe to assume that the deck will support a minimum uniform load of 50 psf (2.4 MPa) without further investigation.

6.1 Temporary Shoring:
The need for temporary shoring shall be investigated and, if required, it shall be designed and installed in accordance with the applicable ACI code and shall be left in place until the slab attains 75% of it's specified compressive strength.

6.2: Prior to Concrete Placement:
The steel deck shall be free of soil, debris, standing water, loose mill scale and all other foreign matter.

6.3:
Care must be exercised when placing concrete so that the deck will not be subjected to any impact that exceeds the design capacity of the deck. Concrete shall be placed from a low level to avoid impact, and in a uniform manner over the supporting structure and spread toward the center of the deck span. If buggies are used to place the concrete, runways shall be planked and the buggies shall only operate on planking. Planks shall be of adequate stiffness to transfer loads to the steel deck without damaging the deck. Deck damage caused by roll bars or careless placement must be avoided.

7. Additional Information & Comments

7.1 Parking Garages:
Composite floor deck has been used successfully in many parking structures around the country; however, the following precautions should be observed:

1.
Slabs should be designed as continuous spans with negative bending reinforcing over the supports;

2.
Additional reinforcing should be included to deter cracking caused by large temperature differences and to provide load distribution.

3.
In areas where salt water; either brought into the structure by cars in winter or carried by the wind in coastal areas, may deteriorate the deck, protective measures must be taken. The top surface of the slab must be effectively sealed so that the salt water cannot migrate through the slab to the steel deck. A minimum G90 (Z275) galvanizing is recommended, and, the exposed bottom surface of the deck should be protected with a durable paint. The protective measures must be maintained for the life of the building. If the protective measures cannot be assured, the steel deck can be used as a stay in place form and the concrete can be reinforced with mesh or bars as required.

7.3 Composite Beams and Girders:
Most composite floor deck sections are suitable for use with composite beams. The AISC Specification specifically provides for the use of deck in this type of construction.

7.4 Fire Ratings:
Many fire rated assemblies that use composite floor decks are available. Consult a SDI member manufacturer for a list of ratings. In the Underwriters Fire Resistance Directory the composite deck constructions show hourly ratings for restrained and unrestrained assemblies. ASTM E119 provides information in Appendix X3 called "Guide for Determining Conditions of Restraint for Floor and Roof Assemblies and for Individual Beams." After a careful review of this guide the Steel Deck Institute determined that all interior and exterior spans of multispan deck properly attached to bearing walls are restrained. In fact, there is almost no realistic condition that a composite deck-slab could not be considered to be restrained - perhaps a single span deck system which is unattached to framing or a wall in order to provide a removable slab.

7.5 Fireproofing:
The metal deck manufacturer shall not be responsible for ensuring the bonding of fireproofing. The adherenceof fireproofing materials is dependent on many variables; the deck manufacturer (supplier) is not responsible for the adhesion or adhesive ability of the fireproofing.

7.6 Dynamic Loads:
Dynamic loading, e.g., fork lifts, can, over a period of time, interfere with the mechanical bond between the concrete and deck which achieves its composite action via web indents. Reinforcing steel running perpendicular to the deck span and placed on top of the deck ribs is often used with this type of loading to distribute concentrated loads.

7.7 Other Criteria:
Composite steel floor deck may be used in a variety of ways, some of which do not lend themselves to standard "steel deck" analysis for span and loading. There are, in these cases, other criteria which must be considered besides that given by the Steel Deck Institute. Make sure this investigation starts with a review of the applicable Codes and that any special conditions are included in the design.

Figure 1
Loading Diagrams & Bending Moments

Simple Span Condition	P, W1, ℓ $+M = .25P\ell + .188W1\ell^2$ W2, W1, ℓ $+M = .125(W1 + W2)\ell^2$ See Commentary Section 3.2	Double Span Condition	P, W1, ℓ ℓ $+M = .203P\ell + .096W1\ell^2$ W2, W1, ℓ ℓ $+M = .096(W1 + W2)\ell^2$ W2, W1, ℓ ℓ $-M = .125(W1 + W2)\ell^2$
Triple Span Condition	P, W1, ℓ ℓ ℓ $+M = .20P\ell + .094W1\ell^2$ W2, W1, ℓ ℓ ℓ $+M = .094(W1 + W2)\ell^2$ W2, W1, ℓ ℓ ℓ $-M = .117(W1 + W2)\ell^2$		

Figure 2
Loading Diagrams & Deflections

Simple Span Condition	W1, ℓ $\Delta = \frac{.013W1\ell^4}{EI}$ (1728)	Double Span Condition	W1, ℓ ℓ $\Delta = \frac{.0054W1\ell^4}{EI}$ (1728)	Triple Span Condition	W1, ℓ ℓ ℓ $\Delta = \frac{.0069W1\ell^4}{EI}$ (1728)

Figure 3
Loading Diagrams & Support Reactions

Simple Span Condition	W2, W1 Pext ℓ Pext Pext = .5(W1+W2)ℓ	Double Span Condition	W2, W1 Pext ℓ Pint ℓ Pext Pext = .375(W1+W2)ℓ Pint = 1.25(W1+W2)ℓ	Triple Span Condition	W2, W1 Pext ℓ Pint ℓ Pint ℓ Pext Pext = .4(W1+W2)ℓ Pint = 1.1(W1+W2)ℓ

Notes for Figures 1, 2 and 3:
P = 150 pound concentrated load | W1 = slab weight + deck weight | W2 = 20 pounds per sq foot construction load | ℓ = span length (ft.)

SDI Specifications for Non-Composite Steel Floor Deck

1. SCOPE

This specification and commentary pertains to the use of non-composite steel deck as a form for reinforced concrete slabs.

Commentary:
This specification is not intended to cover highway bridges (see SDI publication Bridge Form, 1996), siding applications, or exposed roofs. In the past, most of the steel decking used in the manner that this specification covers, was referred to as "centering", however, various roof deck units have successfully been used as non-composite forms. The specification is intended to also include these applications.

2. MATERIALS

2.1 Non-Composite Steel Form Deck:

The steel deck units shall be manufactured from steel conforming to ASTM designation A611 Grades C, D, or E, or A653-98a Structural Steel with a minimum yield strength of 33 ksi (230 MPa). The unit design stress shall not exceed the yield strength multiplied by 0.60, with a maximum of 36 ksi (250 MPa).

Commentary:
Most of the "centering" materials are offered in A653-98a grade 80 steel (galvanized) or ASTM A611 grade E (uncoated); this steel has a minimum yield strength of 80 ksi (550 MPa) and is generally over 90 ksi (620 MPa); the AISI specifications allow a design stress of 36 ksi (250 MPa) for this material.

2.2 Tolerances:

Panel Length:
Plus or minus 1/2 inch (12 mm).

Thickness:
Shall not be less than 95% of the design thickness.

Panel cover width:
Minus 3/8 inch (10 mm), plus 3/4 inch (20 mm).

Panel camber and/or sweep:
1/4 inch in 10 foot length (6 mm in 3 meters).

Panel end out of square: 1/8 inch per foot of panel width (10 mm per m).

Commentary:
The above tolerances reflect fabrication practices for steel deck products. Cover width tolerances may vary due to trucking, storage, or handling.

Type No.	Design Thickness		Minimum Thickness	
	In.	mm	In.	mm
28	.0149	0.38	.014	0.35
26	.0179	0.45	.017	0.43
24	.0238	0.60	.023	0.57
22	.0295	0.75	.028	0.71
20	.0358	0.91	.034	0.86
18	.0474	1.20	.045	1.14
16	.0598	1.52	.057	1.44

FINISHES AVAILABLE ARE:
Galvanized
(Conforming to ASTM A924-94 & or ASTM A653-98a)
Uncoated
(Black)
Painted with a shop coat of primer paint
(one or both sides)

The uncoated finish is, by custom, referred to as "black" by some users and manufacturers; the use of the word "black" does not refer to paint color on the product. Centering materials are usually available galvanized or uncoated. When unshored galvanized material is used to support a reinforced concrete slab, the slab load is considered to be permanently carried by the deck. When uncoated or painted deck is used to support a reinforced concrete slab, the form is considered impermanent and the concrete load should be deducted from the load capacity of the reinforced slab. For any permanent load carrying function, a minimum galvanized coating conforming to ASTM A653-98a, G30 (Z090) is recommended.

3. Design

3.1:

The section properties of the steel deck unit shall be computed in accordance with American Iron and Steel Institute, Specification for the Design of Cold-Formed Steel Structural Members, 1996 edition.

3.2:

Deck used as a form for structural (reinforced) concrete slab:

3.2a

Allowable Stress Design (ASD): Stress shall not exceed 0.60 times the yield strength, nor exceed 36 ksi (250 MPa) under the combined loads of wet concrete, deck, and the following construction live loads: 20 pounds per square foot (1 kPa) uniform load or 150 pound concentrated load on a 1'-0" wide section of deck (2.2 kN per m). The interaction of shear and bending shall be considered in the calculations. See Figure 1., page 29.

3.2b:

Load Resistance Factor Design (LRFD): The load factors to apply to the construction shown in Figure 1 shall be as required by the AISI Specification. The resistance factors for bending, shear, and interior bending shall be as required in the AISI Specification.

Commentary:
The loading shown in Figure 1 is representative of the sequential loading of wet concrete on the form. The 150 pound load (per foot of width) is the result of distributing a 300 pound man over a 2 foot width. Experience has shown this to be a conservative distribution and, if welded wire reinforcing is present the distribution is greater single span deck than 2 feet. The metric equivalent of the 150 pound load is 2.2 kN per meter of width. For conditions, the ability to control the concrete placement may be restricted and a factor of 1.5 is applied to the concrete load to address this condition; however, in order to keep this 50% load increase within a reasonable limit the increase is not to exceed 30 psf (1.44 kPa).

3.2c

Calculated form deflection shall be based on the load of the wet concrete (as determined by the design slab thickness) and the steel deck, uniformly loaded on all spans, and shall be limited to L/180 or 3/4 inch (20 mm), whichever is smaller. Deflection shall be relative to supporting members. See Figure 2., page 29.

Commentary:
The deflection limits of L/180 and 3/4 inches (20 mm) are intended to be minimum requirements. Architectural or other considerations may influence the designer to use a more stringent limit. If the designer wants to include additional concrete loading on the deck because of frame deflection, the additional load should be shown on the design drawings or stated in the deck part of the job specifications. The deck supplier is not responsible for frame deflection, nor for any cambering.

3.2d:

The minimum bearing lengths shall be determined in accordance with the AISI Specification; the uniform loading case of wet concrete plus deck plus 20 pounds per square foot (1kPa) construction load shall be used. Minimum bearing shall be 1 1/2 inches (40 mm) unless otherwise shown.

Commentary:
Form decks made of grade E steel may have a radius to thickness ratio not covered by the AISI Specification. Experience has shown that 1 1/2 inches (40 mm) of bearing is sufficient for these decks. If less than 1 1/2 inches (40 mm) is available for any form deck, or if high support reactions are expected, the designer should ask the deck manufacturer to check the deck web crippling capacity. In any case, the deck must be adequately attached to the structure to prevent slip off.

3.2e:

Design of the concrete slabs shall be done in accordance with the ACI 318 Building Code. The concrete cover over the top of the deck shall not be less than 1 1/2 inches (40 mm). Randomly distributed fibers or fibrous add mixes shall not be substituted for welded wire fabric tensile reinforcement. Admixtures containing chloride salts shall not be used.

Commentary:
In following the ACI 318 requirements for temperature reinforcement, the designer may eliminate the concrete area that is displaced by the deck ribs. For slabs with total depth of 3 inches (75 mm) or less, the reinforcing mesh may be considered to be at the center of the concrete If uncoated or painted deck is used as the form, the load of the concrete slab must be deducted from the calculated capacity of the reinforced concrete slab. If galvanized form is used, the load of the slab is considered to be permanently carried by the deck and need not be deducted from the live load. If temporary shoring is used, the load of the slab must be deducted from the calculated capacity of the reinforced slab regardless of the deck finish. Except for some diaphragm values, the deck should not be assumed to act compositely with the concrete even though strong chemical bonds can, and do, develop.

4. Installation and Site Storage

4.1 Site Storage:
Steel Deck shall be stored off the ground with one end elevated to provide drainage and shall be protected from the elements with a waterproof covering, ventilated to avoid condensation.

tPlace each deck unit on the supporting structural frame. Adjust to final position with accurately aligned side laps and ends bearing on supporting members and attach immediately. On joist framing, be sure the appropriate end joint occurs over a top chord angle for proper anchorage.

Commentary:
Staggering deck ends is not a recommended practice. The deck capacity as a form and the load capacity of the non-composite deck/slab system are not increased by staggering the end joints, yet layout and erection costs are increased.

4.3 Lapped or Butted Ends:
Deck ends may be either butted or lapped over supports.

Commentary:
Gaps are acceptable at butted ends. If taping of butted ends is requested, it is not the responsibility of the deck manufacturer.

4.4 Anchorage:
Floor deck units shall be anchored to supporting members including perimeter support steel and/or bearing walls by either welding or by mechanical fastening. This shall be done immediately after alignment. The minimum recommended attachments is defined in Section 4.4a. Do not walk or stand on deck until these minimum attachments are accomplished at the structural supports. Deck units with spans greater than five feet (1.5 m) shall have side laps and perimeter edges (at perimeter support steel) fastened at midspan or 36 inch (1 m) intervals - whichever is smaller. Sidelap attachment shall progress from the support to midspan.

Commentary:
This anchorage may be required to provide lateral stability to the top flange of the supporting structural members. The minimum attachment is to prevent slip off from supports and provide stability of the deck systems. The deck should be anchored to act as a working platform and to prevent blow off. The frame fastening shown in figure 4 and the side lap fastening of 4.4 ARE MINIMUM REQUIREMENTS. In no case should fasteners to the supports be spaced greater than 36 inches (1 m) on center. The SDI Diaphragm Design Manual, Second Edition, should be used to determine fastening requirements when the deck is designed to resist horizontal loads. The most stringent fastening requirements, of this specification or, if applicable the SDI Diaphragm Design Manual, Second Edition should be used. Side lap fasteners can be welds, screws, crimps (button punching), or other methods approved by the designer. Welding side laps on thickness less than 0.028 inches (0.7 mm) may cause large burn holes, and is not recommended. The objective of side lap fastening is to prevent differential sheet deflection during concrete loading, therefore preventing side joints from opening. The five foot (1.5 m) limit on side lap spacing is based on experience. The deck contractor should not leave unattached deck at the end of the day as the wind may displace the sheets and cause injury to persons or property. If studs are being welded to the top flange of the beams, deck sheets should be butted over the supports.

4.4a Welding:
All welding of deck shall be in strict accordance with ANSI/AWS D1.3, Structural Welding Code - Sheet Steel. Each welder must demonstrate an ability to produce satisfactory welds using a procedure such as shown in the SDI Manual of Construction with Steel Deck, or as described in ANSI/AWS D1.3. Welding washers shall be used on all deck units with metal thickness less than 0.28 inches (0.7 mm). Welding washers shall be a minimum thickness of 0.0598 inches (16 gage, 1.5 mm) and have a nominal 3/8 inch (10 mm) diameter hole. Where welding washers are not used, a minimum visible 5/8 inch (15 mm) diameter arc puddle weld shall be used. Weld metal shall penetrate all layers of deck material at end laps and shall have good fusion to the supporting members. When used, fillet welds shall be at least 1 inch (25 mm) long.

Commentary:
The welder may be qualified under ANSI/AWS D1.1, Structural Welding Code - Steel, or under the provisions of other codes governing the welding of specific products, but may not be qualified for welding sheet steel. In general, stronger welds are obtained on 0.028 inches (0.7 mm) or thicker deck without weld washers. Welds on deck less than 0.028 inches (0.7 mm) are stronger with washers. The layout, design, numbering or sizing of shear connectors is not the responsibility of the deck manufacturer. If studs are being applied through the deck onto structural steel, the stud welds can be used to replace the puddle welds.

4.4b Mechanical Fasteners:
Mechanical fasteners (powder-actuated, screws, pneumatically driven fasteners, etc.) are recognized as viable anchoring methods, provided the type and spacing of the fasteners satisfy the design criteria. Documentation in the form of test data, design calculations, or design charts should be submitted by the fastener manufacturer as the basis for obtaining approval. The deck manufacturer may recommend additionalfasteners to stabilize the given profile against sideslip of any unfastened ribs.

Commentary:
When the fasteners are powder actuated or pneumatically driven, the allowable load value per fastener spacing is based on a minimum structural support thickness of not less than 1/8 inch (3 mm) and on the fastener providing a 5/16 inch (8 mm) diameter bearing surface (fastener head size). When the structural support thickness is less than 1/8 inch (3 mm), power actuated or pneumatically driven fasteners shall not be used, but screws are acceptable.

4.5 Construction Practice

4.5a
All deck sheets shall have adequate bearing and fastening to all supports so as not to lose support during construction. Deck areas subject to heavy or repeated traffic, concentrated loads, impact loads, wheel loads, etc. shall be adequately protected by planking or other approved means to avoid overloading and/or damage. Damaged deck (sheets containing distortions or deformations caused by construction practices) shall be repaired, replaced, or shored to the
satisfaction of the designer before placing concrete. The cost of repairing, replacing, or shoring of damaged units shall be the liability of the trade contractor responsible for the damage.

Commentary:
For temporary construction loads prior to concrete placement, it should be safe to assume that the deck will support a minimum uniform load of 50 psf (2.4 kPa) without further investigation.

4.5b
The need for temporary shoring shall be investigated and, if required, it shall be designed and installed in accordance with the applicable ACI code and shall be left in place until the slab attains 75% of its specified compressive strength.

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4.5c

Prior to concrete placement, the steel deck shall be free of soil, debris, standing water, loose mill scale and all other foreign matter.

4.5d

Care must be exercised when placing concrete so the deck will not be subjected to any impact that exceeds the design capacity of the deck. Concrete shall be placed from a low level to avoid impact, in a uniform manner, over the supporting structure and spread toward the center of the deck span. If buggies are used to place the concrete, runways shall be planked and the buggies shall only operate on planking. Planks shall be of adequate stiffness to transfer loads to the steel deck without damaging the deck. Deck damage caused by roll bars or careless placement must be avoided.

4.6 Information

Commentary: Fire ratings, diaphragm design information and reinforced concrete slab capacities are available from most SDI form deck manufacturers. Steel form deck may be used in a variety of ways, some of which do not lend themselves to a standard "steel deck" analysis for span and loading. In these cases there are other criteria which must be considered besides those given by the Steel Deck Institute. Make sure that this investigation starts with a review of the applicable codes and that any special conditions are included in the design.

4.7 Fireproofing

The metal deck manufacturer shall not be responsible for ensuring the bonding of fireproofing. Adherence of fireproofing materials is dependent on many variables; the deck manufacturer (supplier) is not responsible for the adhesion or adhesive ability of the fireproofing.

FIGURE 1
Loading Diagrams & Bending Moments

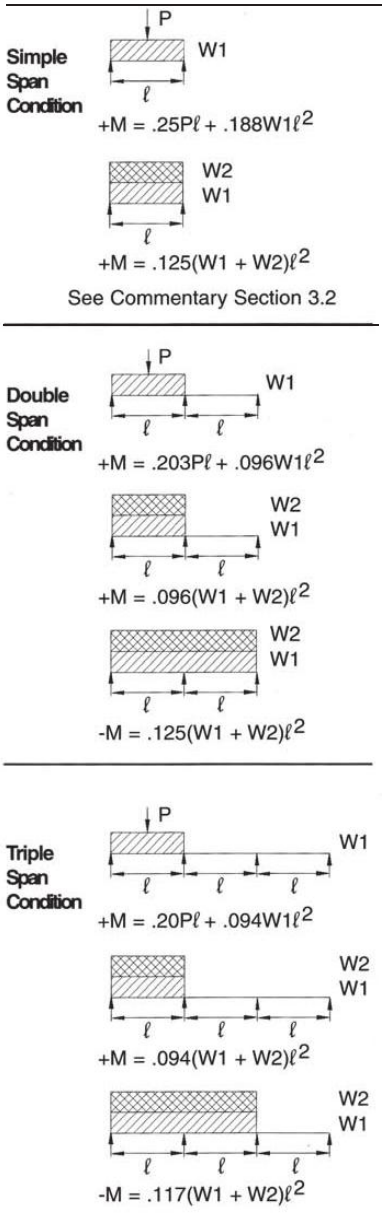


FIGURE 2
Loading Diagrams & Deflections

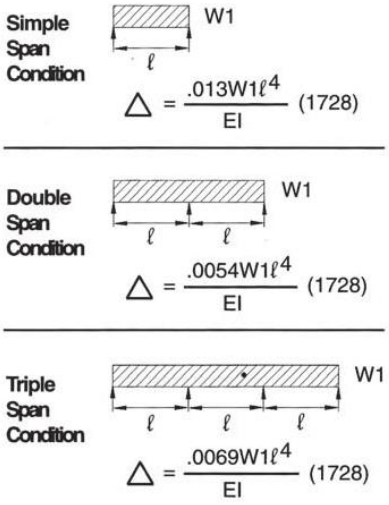
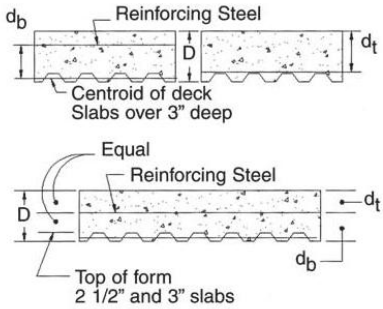
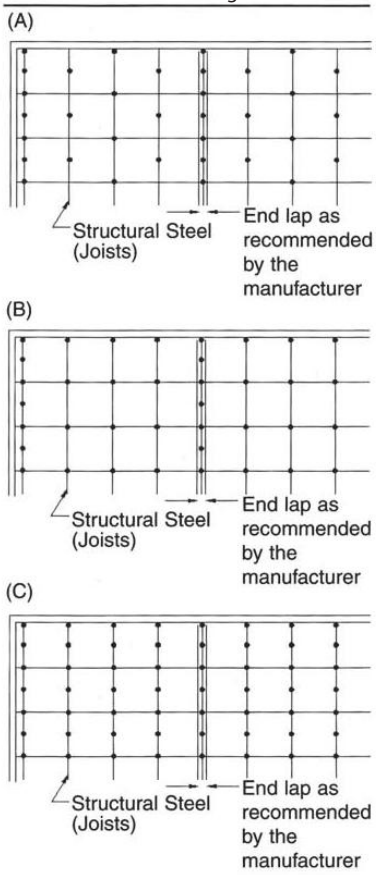


FIGURE 3
Form Deck Typical Slabs



D = Depth of Slab
d_t = Distance from reinforcing steel to top of concrete
d_b = Distance from reinforcing steel to centroid of deck

FIGURE 4
Minimum Fastening Patterns



Intermediate side lap attachments not shown. See Section 4.4 Anchorage non-composite steel form deck.

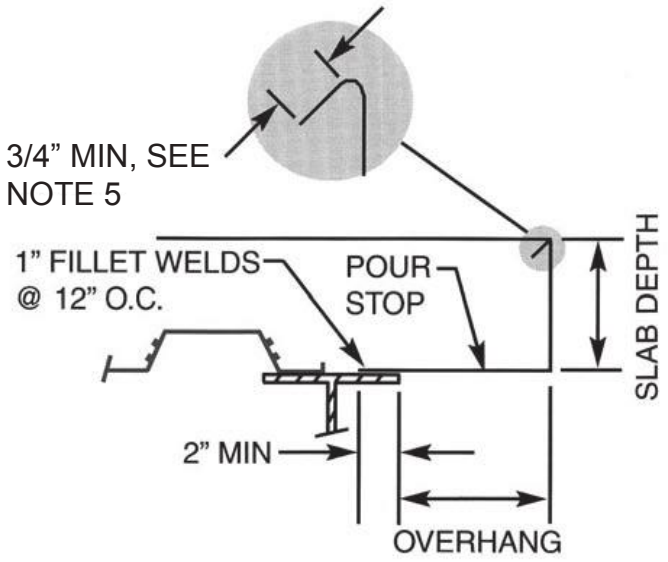
Note:
Fastener patterns A & B are for deck spans up 4'-6". Fastener pattern C is for deck spans from 4'-6" to 8'-0". If spans exceed 8'-0", fastener should be placed so that the average spacing (at supports) is not more than 12".

Notes for Figures 1, 2 and 3:
P = 150 pound concentrated load
W1 = slab weight + deck weight
W2 = 20 pounds per sq foot construction load
ℓ = span length (ft.)

Pour Stop Selection Table

Slab Depth (Inches)	Overhang (Inches)												
	0	1	2	3	4	5	6	7	8	9	10	11	12
	Pour Stop Types												
4.00	20	20	20	20	18	18	16	14	12	12	12	10	10
4.25	20	20	20	18	18	16	16	14	12	12	12	10	10
4.50	20	20	20	18	18	16	16	14	12	12	12	10	10
4.75	20	20	18	18	16	16	14	14	12	12	12	10	10
5.00	20	20	18	18	16	16	14	14	12	12	10	10	
5.25	20	18	18	16	16	14	14	12	12	12	10	10	
5.50	20	18	18	16	16	14	14	12	12	12	10	10	
5.75	20	18	16	16	14	14	12	12	12	12	10	10	
6.00	18	18	16	16	14	14	12	12	12	10	10	10	
6.25	18	18	16	14	14	12	12	12	12	10	10		
6.50	18	16	16	14	14	12	12	12	12	10	10		
6.75	18	16	14	14	14	12	12	12	10	10	10		
7.00	16	16	14	14	12	12	12	12	10	10	10		
7.25	16	16	14	14	12	12	12	10	10	10			
7.50	16	14	14	12	12	12	12	10	10	10			
7.75	16	14	14	12	12	12	10	10	10	10			
8.00	14	14	12	12	12	12	10	10	10				
8.25	14	14	12	12	12	10	10	10	10				
8.50	14	12	12	12	12	10	10	10					
8.75	14	12	12	12	12	10	10	10					
9.00	14	12	12	12	10	10	10						
9.25	12	12	12	12	10	10	10						
9.50	12	12	12	10	10	10							
9.75	12	12	12	10	10	10							
10.00	12	12	10	10	10	10							
10.25	12	12	10	10	10								
10.50	12	12	10	10	10								
10.75	12	10	10	10									
11.00	12	10	10	10									
11.25	12	10	10										
11.50	10	10	10										
11.75	10	10											
12.00	10	10											

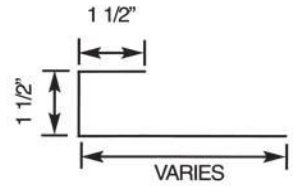
Types	Design Thickness
20	.0358
18	.0474
16	.0598
14	.0747
12	.1046
10	.1345



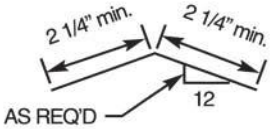
NOTES: The above Selection Table is based on the following criteria:

1. Normal weight concrete (150 pcf).
2. Horizontal and vertical deflection is limited to 1/4" maximum for concrete adead load.
3. Design stress is limited to 20 ksi for concrete dead load temporarily increased by one-third for the construction live load of 20 psf.
4. Pour Stop Selection Table does not consider the effect of the performance, deflection, or rotation of the pour stop support which may include both the supporting composite deck and/or the frame.
5. Vertical leg return lip is recommended for all gages.
6. This selection is not meant to replace the judgement of experienced Structural Engineers and shall be considered as a reference only.

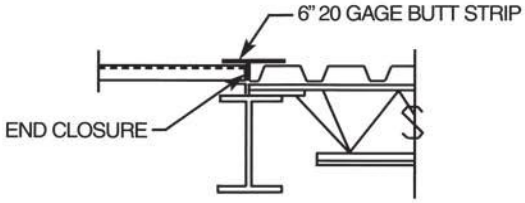
Accessories



CELL CLOSURE (20 GAGE MIN.)

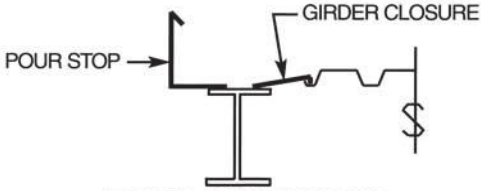


RIDGE AND VALLEY PLATE (20 GAGE MIN.)

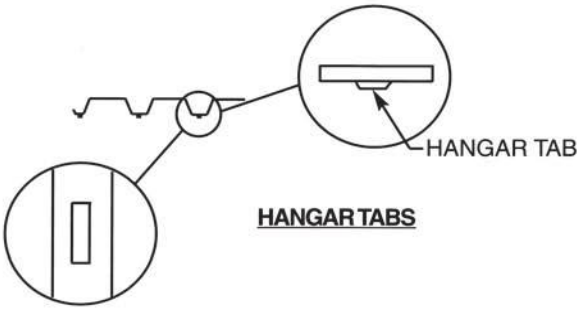


DETAIL WHERE DECK CHANGES DIRECTION

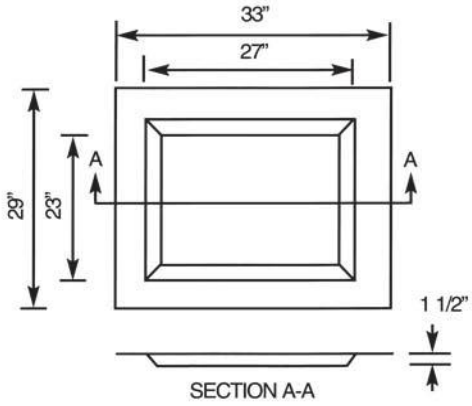
WELDING WASHERS 5/16" HOLE, 14 GAGE



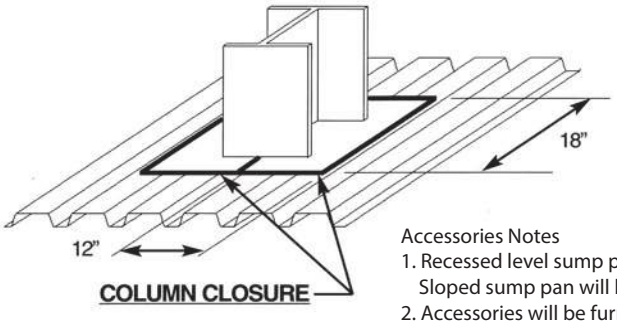
TYPICAL POUR STOP AND GIRDER CLOSURE APPLICATION



HANGAR TABS



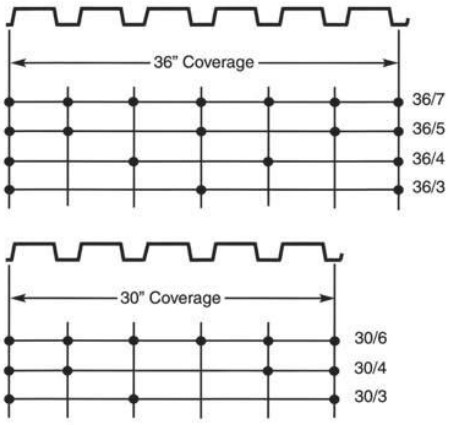
RECESSED SUMP PAN LEVEL (14 GAGE MIN.) (HOLE CUT IN FIELD BY OTHERS)

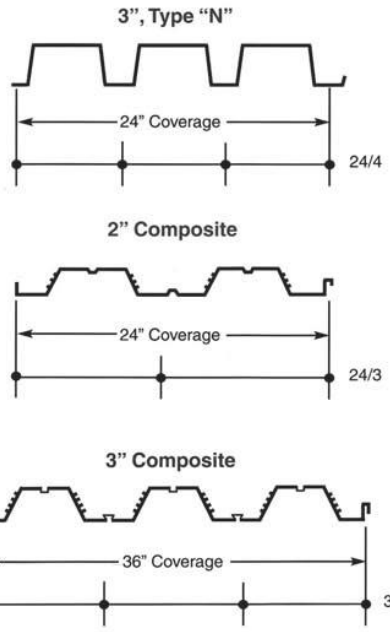


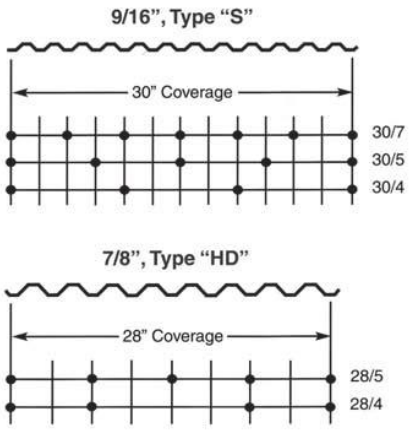
COLUMN CLOSURE

Accessories Notes
1. Recessed level sump pan is standard.
   Sloped sump pan will be furnished only when specified.
2. Accessories will be furnished in 10' lengths.
3. Accessories will only be furnished when ordered.
4. Tek screws are also available.
5. Hanger tabs available in all composite decks
   20 gage and heavier.

TYPICAL FASTENER LAYOUTS







Sidelap Fastening:
In general, if spans are less than 5'-0" sidelap fastening is not required. If spans are greater than 5'-0", deck is to be fastened at midspan or every 36", whichever is smaller.

Notes

Notes

Notes

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